

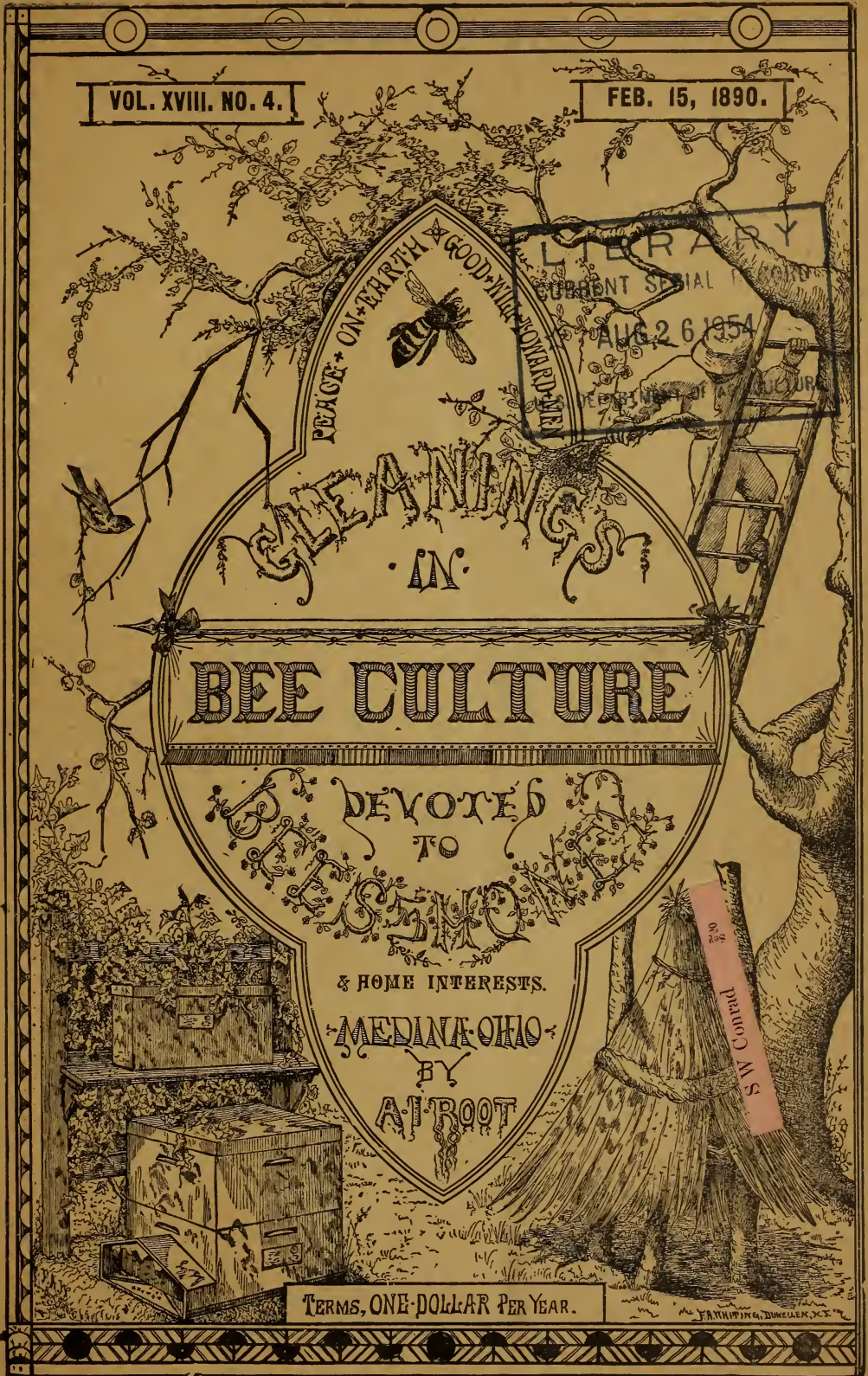
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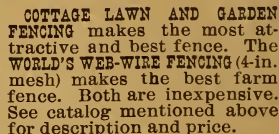
VOL. XVIII. NO. 4.

FEB. 15, 1890.



ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

The Best Quality on the Market, at Prices as Low as the Lowest.



Three-fourths-inch galvanized staples, for putting up the netting, 20 cts. per lb. It takes 1 lb. per roll.

A. I. ROOT Medina, Ohio.

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**FOR PURE ITALIAN BEES, POLAND-
China Swine, White and Black Ferrets, White
Rabbits, White and Brown Leghorn Chickens, and
Mallard Ducks, Address N. A. KNAPP,
4tfdb Rochester, Lorain Co., Ohio.**

FIRST-CLASS BROOD-FRAMES cut to
order, any size. Per 100, \$1.00; 500, \$4.75; 1000,
\$9.00. C. W. VANHOUTEN, Smithfield, Ful. Co., Ill.

PEACH TREES Wholesale and Retail.
Send for prices.
4-5d R. S. JOHNSTON, Stockley, Delaware.

For Sale.—For cash, cheap, or trade for a good
piece of land, from 50 to 200 colonies of Italian bees
in the Quinby hive, and a few in Root's Simplicity.
Too much work, with other business.
2tfdb G. HARSEIM, Secor, Woodford Co., Ills.

BEE-KEEPERS' SUPPLIES.

We are prepared to furnish bee-keepers with sup-
plies promptly, and at greatly reduced rates. Es-
timates gladly furnished, and correspondence so-
lited. Our goods are unexcelled in quality and
workmanship.

Italian Queens and Bees at a very low price.
Send for large illustrated price list, free. Alley's
Queen and Drone Trap and Swarm Hiver always on
hand.
20tfdb **A. F. STAUFFER & CO.,
Sterling, Ill.**

In responding to this advertisement mention GLEANINGS.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested
queens, \$2.00; after June 1, \$1.50. Untested queens,
\$1.00; after June 1, 75c. Remit by postoffice money
order, registered letter, or draft on New York. For
any other information, address

C. W. JONES & CO.,
4-9db Bryant Station, Maury Co., Tenn.

In responding to this advertisement mention GLEANINGS.

Carniolan Queens & Bees a Specialty.

The co-partnership of Andrews & Lockhart is
now closed, and the senior partner (who has bred
those queens and bees for six years) will breed
queens and bees from imported mothers, in the
season of 1890, and will sell, the 1st of June, untested
at \$1.00; one-half dozen at \$5.00; one dozen at
\$9.00. The tested, the 15th of June, \$2.00; one-half
dozen, 15th of June, \$10.00. All queens above the
untested will be put into one class, and sold as
tested at \$2.00, of next year's breeding. I expect to
have queens of last year's breeding, which I will
sell on the 10th of May, tested, \$2.50; one-half
dozen, \$12.00. Send for circular.
1-6db

JOHN ANDREWS,
Pattens Mills, Wash. Co., N. Y.

In responding to this advertisement mention GLEANINGS.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is
the best paper extant devoted to these specialties.
24 pages, WEEKLY, at \$1.00 per year. Live, prac-
tical, interesting. Nothing stale in its columns.
Specimen copies free. Subscribers paying in ad-
vance are entitled to two insertions of a five-line
adv't (40 words) in the Exchange and Mart column.
THE D. A. JONES CO., BEETON, ONTARIO, CAN.

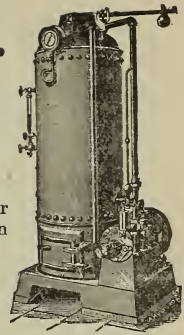
Engines & Boilers.

**Complete Outfit, or
Engine Alone.**

**The Best and Most Sub-
stantial Engine Made.**

Fully guaranteed. Send for
circular and price list. Mention
this paper.

**MEDINA ENGINE CO.,
20tfdb Medina, Ohio.**

**LOOK HERE!**

Bee-Keepers and Fruit-Growers, before
you order your supplies for 1890, send for my cata-
logue and price list of **Bee-Keepers' Supplies**
and **Strawberry Plants**. Twenty-five approved
varieties grown for this season's trade. Prices
reasonable. **Bees and Queens** for sale; \$1.00
queens a specialty. Address **F. W. LAMM,
24-23db (Box 106.) Somerville, Butler Co., Ohio.**
In responding to this advertisement mention GLEANINGS.

Light Brahmas and Laced Wyandottes.

Standard, high-scoring males, \$1.50 and upward.
Eggs from show birds \$1.50 per clutch, after the 7th
of April. SIGEL F. GROSS, Atwood Ill. 3-4d

FOR SALE!

One of the best located apiaries in Iowa, 150
Colonies, in Langstroth hives. Handsome two-
story frame residence. Twenty acres land. All
necessary out-buildings. Also fine flock White Wy-
andottes. Two cows, nice span driving horses. Never
a failure of honey. White clover, basswood, gold-
en-rod, buckwheat, etc. House nearly new, nicely
decorated paper, a very pleasant home. Price
\$2500.
C. A. SAYRE,
23tfdb Sargent, Floyd Co., Iowa.

In responding to this advertisement mention GLEANINGS.

For Sale.—40 colonies of Italian and hybrid bees
in Simp. hives, mostly on wired frames. All in
good condition, with plenty of stores. No foul
brood ever in our country. GUSTAVE GROSS,
2tfdb Greenville, Bond Co. Ills.



**Eaton's Improved
SECTION CASE.**
BEES AND QUEENS. Send for
free catalogue. Address
**FRANK A. EATON,
Bluffton, Ohio.**

In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY
PROF. A. J. COOK,

AUTHOR OF THE
**BEE-KEEPER'S GUIDE, INJURIOUS IN-
SECTS OF MICHIGAN, ETC.**

The name of the author is enough of itself to rec-
ommend any book to almost any people; but this
one on Maple Sugar is written in Prof. Cook's hap-
piest style. It is

PROFUSELY * ILLUSTRATED, &c.

And all the difficult points in regard to making the
very best quality of Maple Syrup and Maple Sug-
ar are very fully explained. All recent inven-
tions in apparatus, and methods of making
this delicious product of the farm, are fully
described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, - - Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

I just opened GLEANINGS for Dec. 15. It is a "daisy" number. Those pictures would make almost anybody feel like going into the bee-business. O'Quinn, Tex., Dec. 23. J. C. MELCHER.

LEADER SHEARS.

I like those Leader shears so well that I want my friends to have some like them. Please send me three pairs more. I. N. PEARSON.
Normandy, Tenn.

I received the 4 boxes yesterday. The hives are fine. I sold two of them before I got them together. I think I can sell several of them. I charge \$4.00 for them complete. J. R. COUGILL.
McArthur, O., Dec. 19, 1889.

DOVETAILED HIVES BEST AND SIMPLEST.

The goods I ordered of you came all right. The Dovetailed hives are the simplest and best I ever saw. WILIE DOUGLASS.
Lexington, Texas, Jan. 25.

GRAND RAPIDS LETTUCE-PLANTS.

Those lettuce-plants ordered about a month ago came to hand very promptly, and in the best of condition. Every plant grew, and many are now about 6 inches tall. S. F. HERMAN.
Tuscaloosa, Ala., Dec. 31.

OUR \$12.00 SEWING-MACHINE AS GOOD AS A \$50.00 MACHINE.

We received the machine last Monday in good order. We are pleased with it, and glad to speak of you as an honest Christian man. My neighbors were here to look at the machine. They think it is as good as a fifty-dollar machine. GEHRTON STA., Pa., Jan. 23. DE FOREST TRUAX.

OUR CHRISTMAS NUMBER.

I drop you a few lines to thank you for those beautiful pictures of different apiaries, for there is a good lesson in every one of them, already explained in GLEANINGS. The December 15th issue is the best Christmas present I ever received; and those goods I ordered came all in good shape. SETH NELSON.
Wistar, Pa., Jan. 1.

GLEANINGS AS AN ADVERTISING MEDIUM.

Mr. Root:—Please say to the friends, that I received more communications in answer to my ad't in GLEANINGS, Nov. 1, than I can reply to. S. W. White, of Missouri, has taken the position as assistant in Rattlesnake apiary; Thomas H. Mills, of Sarnia, Canada, will take charge of my apiary No. 2. E. Y. TERRAL.
Cameron, Texas. Judge of Milam Co.

WHAT AN ARTIST THINKS OF OUR PICTURE GALLERY.

I desire by these few lines to extend to you my most hearty thanks for the Picture Gallery, as per supplement. I appreciate it very much indeed; first, because it not only suggests to us various ideas of bee-keepers, but it presents to us one of the first albums of apiaries, perhaps, published in the world, and not only so, but they are engravings of a high grade of excellence. J. A. GOLDEN, Artist.
Reinersville, O., Dec. 23.

BUSINESS AND RELIGION.

You seem to mix your religion in with your business. I like the mixture. Josh Billings said a man needed as much religion when he measured his onions as he did when he "hollered glory hallelu-ye!" I think he needs a little more. If there were a little religion mixed in all business transactions, it would be better for all parties concerned. I owe you a debt of gratitude for what I have learned from GLEANINGS and your A B C book. I am sorry I did not get hold of them years ago. I have a fine herd of cattle here; and if I succeed with the bees I shall have my old cotton plantation flowing with milk and honey, on a small scale. Bees gather honey very rapidly in the spring and early summer from white clover, poplar (or tulip)

tree, and basswood. When these fail there is nothing for them to gather. T. N. BEDFORD.
Fayette, Miss., Dec. 30.

GLEANINGS GROWING BETTER; TOBACCO COLUMN.

I believe GLEANINGS is growing better from year to year, and from month to month, and it comes to us away here in the Rocky Mountains so regularly that we always know in just what mail to look for it. I read it with great interest, particularly Our Homes; and your Tobacco Column is doing a great deal of good. I hope no criticism of your course will dampen your ardor in that line. I verily believe that the remarks of Dr. Mason, at the International Convention, on hobby-riding, as reported by Ernest, resounded more to the glory of God than any tobacco-smoking ever indulged in by man. MRS. LAURA A. NEVINS.
Silver Cliff, Col., Dec. 25, 1889.

TWO HONEY QUEENS IN A BENTON CAGE TO CALIFORNIA.

I received the two honey queens ordered from you Oct. 22d, in the midst of a very rainy spell. They were only 8 days in transit. One cage had one dead bee; the other, none that I could see. The queens are lively, but I had to wait till next day to introduce, on account of rain. I christened the queens "Medina" and "Alice." I caged Medina Oct. 23, on brood and honey, 24 hours after removing queen. Oct. 25 I released her. Returning in an hour I found her "balled," and took her out. Oct. 26 I caged her in another hive, immediately after removing queen; released her Nov. 1. She is doing well. I had less trouble with Alice. I caged her the 24th, as soon as the other queen was removed, and released her the 26th. She has quite a show of progeny now, and they have certainly stored some honey this month in recently vacated brood cells. The weather here is extremely wet.

I am specially pleased with the religious tone of GLEANINGS, and don't want to miss a single number. I want to encourage you to persevere, as the Lord may lead, in your warfare against tobacco. ALLEN BARNETT.
Whittier, Cal., Dec. 24.

KIND WORDS FROM A BROTHER IN TEXAS.

Brother Root:—I love to read the pieces you write, under the head of Myself and My Neighbors. It is about the first thing I read, when GLEANINGS comes in with such a bright smiling face. I should just about as soon do without my breakfast as to fail to get GLEANINGS. You may wonder why I call you "brother." It is because Christ, in his infinite love and mercy, has found me, a wanderer, and has been pleased to turn my steps heavenward. It has been about three months since I became a member of a church. I am now 40 years old. I have been afflicted a good deal, and have been near death's door several times, and it has always been a mystery to me why I was spared. But since I have become a Christian, and, as I hope and believe, a better man, it seems plainer why I was spared; and if I could be the happy means of inducing some other mortal to come to Christ, then I should have lived to some purpose. And you, Bro. Root, in your writings in GLEANINGS, have exerted an influence for good, not only in my case, but I hope in many others; and may God spare you and yours many long years, to cast bread, as it were, upon the waters, that may return after many days. W. A. CARTMELL.
Crowley, Tex., Dec. 14.

SOME KIND WORDS FROM AUSTRALIA.

In a price list of aparian goods published by Walters & Co., of Adelaide, Australia, we find the following in regard to our A B C book and GLEANINGS. The kind words are the more appreciated because they come unsolicited from our unknown friends in the southern part of the globe.

"As a text-book, the A B C of Bee Culture stands unrivaled, being a cyclopaedia of 400 pages and 250 illustrations. It is arranged in alphabetical form, so that any subject it is desired to refer to may be quickly and readily found. This alone is a great recommendation."

OF GLEANINGS they say:

"GLEANINGS is one of the greatest helps in the apary procurable, besides containing a lot of other useful matter on various home subjects. It is nicely printed on toned paper, and contains many illustrations."

Wants or Exchange Department.

WANTED.—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation, for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to

F. DANZENBAKER,
1301 K. St., N. W., Washington, D. C.

WANTED.—To exchange for land or stock merchandise, a first-class apiary, 175 colonies. No better location. Crop, past season, 18,000 lbs. Bees need not be moved. Every thing complete, ready for business. Found-machines, 4-horse-power, etc. Good trade direct with consumers. Give particulars for particulars.

H. L. GRAHAM,
Letts, Louisa Co., Ia.

WANTED.—To exchange for comb or strained honey of good quality, one feed-grinder worth \$25 00. Can be operated by an ordinary wind-mill, and warranted to do good work. Address

AMERICAN CARP CULTURE, Alliance, O.

WANTED.—To exchange bees in S. hive, or by the pound, for amateur photograph outfit, turning-lathe, blacksmith's drill, gent's saddle, or offers.

F. W. STEVENS,
3-4d Moore's Hill, Dearborn Co., Ind.

WANTED.—To exchange bees for supplies; also to rent or let an apiary, location good. If not let by March 1, I want a man for 1890.

A. E. WOODWARD,
3-4d Grooms Corners, Sar. Co., N. Y.

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with $5\frac{1}{2} \times 9\frac{1}{2}$ -in. chase.

3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—Bee-help for 1890. One man with experience, and two desiring to learn the practical part of apiculture. Must be strictly temperate. State wages expected, and other particulars.

3-6db S. I. FREEBORN, Ithaca, Wis.

WANTED.—To exchange Gregg, Souhegan, Early Ohio, and Tyler raspberry-plants, Warfield, Bubach, Jessie, May King, and Hoffman strawberry-plants, A No. 1 plants, and true to name, for sections, honey, beeswax, or pear-trees. Satisfaction guaranteed.

3-5-7d E. T. FLANAGAN, Belleville, Ills.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars.

18tfdb CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.

WANTED.—To exchange all kinds of wall paper, for honey.

J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.

1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange young Italian queens for 1-lb. sections or foundation-mill. Queens ready to ship now, by first mail. I guarantee satisfaction.

2-3-4 J. W. TAYLOR,
Ozan, Hempstead Co., Ark.

WANTED!!! I want a man to take charge of an apiary.

2-5db F. D. LACY,
Nirvana, Lake Co., Mich.

WANTED.—To exchange 40 acres of good farming land, for bees; also other property.

A. P. DAY, Newaygo, Mich.

WANTED.—To exchange foundation, for beeswax. Sample on application.

Avery's Island Apiary, Avery, Ia.

WANTED.—Kansas land, 320 acres, first quality, improved, for a small place suitable for apiary or for other town property. Also books for bee-supplies.

4d Lock Box 545, Olathe, Kan.

WANTED.—To exchange a nice white bull-terrier pup, grapevines, blackberry-plants, asparagus-plants, and a lot of carpenter's tools, for S. or L. hives in flat, wired frames, foundation, or 3-frame nuclei.

4d F. T. WEATHERVILLE,
Jonesville, N. Y.

WANTED.—To exchange from one to 1000 books, of new publication, for bees and apiarian fixtures.

F. D. LACY, Nirvana, Lake Co., Mich. 4tfdb

WANTED.—I want a small-size baling-press, for which I will exchange folding paper boxes, Italian bees, hives, extractors, or job printing.

4-5d A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange nursery stock for shotgun or lawn-mower.

4-56d GEO. GOULD,
Villa Ridge, Pulaski Co., Ill.

WANTED.—Foot-power circular saw. Barnes complete preferred; must be cheap.

4d F. H. SCOTT,
Gaylord, Otsego Co., Mich.

WANTED.—To exchange honey for L. Brahma or S. C. W. Leghorn hens.

4d W. T. F. PETTY & SON,
Pittsfield, Pike Co., Ill.

WANTED.—Help. I wish to correspond with some young man who has had some experience in modern bee-keeping, but who does not know it all. A suitable person, who is temperate, industrious, and has a liking for bee-keeping, can find a good situation as a helper.

4d C. H. DIBBERN,
Milan, Ill.

WANTED.—To exchange one Ply. Rock male and six female birds of thoroughbred stock—all in their second year—for comb foundation, Japanese buckwheat, or offer.

F. GREINER, Naples, N. Y. 4d

WANTED.—To exchange Ply. Rock, Langshan, and Wyandotte cockerels for Wyandotte hens, thoroughbred. Correspondence solicited.

45d W. H. SWIGART, Dixon, Ill.

WANTED.—To exchange a house and lot in Clifton, Kan., worth \$650, encumbered with \$250 mortgage, for 50 colonies Italian bees, and \$100 worth of bee-hive stuff, all to be delivered at Ottawa, Kan. For particulars write to

J. R. BARNHARD, Centropolis, Frank. Co., Kan.

WANTED.—Situation. A young married man of 26 years, without children, wishes a situation with a good Christian bee-man, to work with bees, and do light farm work. A supply-dealer who makes his own supplies preferred, as I have had 10 years' experience with wood-working machinery.

W. H. DICKINSON, Deep River, Conn.

WANTED.—To exchange \$1 setting of eggs, from prize stock, your choice of 14 varieties, for bee-smoker. Bee-book wanted. List free.

OHIO POULTRY YARDS, Sherwood, O.

WANTED.—To exchange the best style of brood-frame on earth, for empty cards; also V-grooved sections at \$2.50 per 1000, for empty cards.

4d J. B. MURRAY, Ada, O.

CARNIOLAN QUEENS,

BRED FROM AMBROZIO AND BENTON
Imported 1889 Queens.

Circular of Supplies | J. B. Kline's Apiary,
and Queens. | Topeka, Kas.

☞ In responding to this advertisement mention GLEANINGS.

THE SECRETS OF SUCCESS IN GROWING SMALL FRUITS,

And Catalogue of Varieties, New and Old. I offer bargains in Plant and Garden seed Collections.

4d I. A. WOOLL, ELSIE, MICH.

☞ In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS AT \$1, and 4-frame nuclei at \$3.50, after May 1st. Send in orders now.

4-10db S. J. WAKEFIELD, Autreville, S. C.

REMOVED, from Coburg to RED OAK, IOWA. my entire factory for BEE SUPPLIES.

Wholesale and Retail.

40-page Illustrated catalogue FREE to all. 4tfdb

We have the largest steam-power shops in the West, exclusively used to make EVERYTHING needed in the Apiary, of practical construction and at the LOWEST PRICES. Italian bees, queens, 12 styles of Hives; Sections, Honey-Extractors, Bee-Smokers, Feeders, Comb Foundation, and everything used by bee-keepers, always on hand.


Address **E. KRETCHMER, Red Oak, Iowa.**

☞ In responding to this advertisement mention GLEANINGS.

BURPEE'S SEEDS BEST

ARE THE

it is possible to produce by constant, most critical care, and are **WARRANTED**, few equal and none better. Handsomely illustrated **CATALOGUE**, with colored plates painted from nature, of **RARE NOVELTIES** of sterling merit, mailed **FREE** to any address.



W. ATLEE BURPEE & CO., Philadelphia, Pa.

☞ In responding to this advertisement mention GLEANINGS.

TILLINGHAST'S NEW FLORAL ALBUM

Is not a seed catalogue but a magnificent volume containing 270 Elegantly Colored Plates, making the most Beautiful and Extensive Collection of Floral Lithographs ever published. The first copy cost over \$2000.00. I will mail one copy for introduction on receipt of 50 cents.

ISAAC F. TILLINGHAST, La Plume, Pa.

☞ In responding to this advertisement mention GLEANINGS.

ALSIKE.

Choice Seed, \$5.50 Per Bush.

Silver Wyandotte and B. Leghorn eggs, 75c per 13, or \$1.00 for 26. Stock unsurpassed.

C. M. GOODSPEED, Thorn Hill, N. Y.

☞ In responding to this advertisement mention GLEANINGS.



BEEES FOR SALE

COLONIES,
NUCLEI,
AND QUEENS,

at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,

4t db

Columbia, Tenn.



☞ In responding to this advert. ment mention GLEANINGS.

MUST SELL!

50 Colonies Italian Bees at \$5.00 each, f. o. b., in 8-frame L. hives, telescope caps. Most of the combs built on fdn. in wired frames. These bees were very heavy in stores in the fall. Reasons: Can keep only about 25 colonies here in the city, and my business will not allow starting out-aparies. Ship in April or May.

W. E. YODER,

LEWISBURGH, UNION CO., PA.

☞ In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT AT \$1.20 PER BUSHEL. Eggs from pure-bred Partridge Cochins, and S.C. Brown Leghorns Strawberry-plants. 4-5d **C. B. JACKSON, Eau Claire, Eau Claire Co., Wis.**

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apianian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

☞ In responding to this advertisement mention GLEANINGS.

SEEDS. Don't buy your seeds or plants till you see my **FREE 1890 catalog.** I offer something wonderful. Send for it. **F. B. MILLS, Thorn Hill, N. Y.**

Japanese Buckwheat, 60c Per Bush.

Alsike clover seed, \$7.00 per bush. No. 1 one-piece sections, \$3.00 per M. Extra nice foundation, thin, 45c per lb.; brood, 40c. Best bee-veil out, only 30c. All supplies cheap. Send for new list free. 22tfdb

W. D. SOPER.

Box 1473.

Jackson, Mich.

☞ In responding to this advertisement mention GLEANINGS.

\$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for \$25.00.

In Simplicity or L. 10-frame hives; 250 colonies to 4-9db draw from. Address

JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

☞ In responding to this advertisement mention GLEANINGS.

\$1.50 REVERSIBLE 8-FRAME LANCSTROTH HIVE.

J. B. WILCOX, - - MANISTEE, MICH.

☞ In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

☞ Parties wanting more should write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

☞ In responding to this advertisement mention GLEANINGS.

SECTIONS, \$3 PER 1000.

Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our **FREE PRICE LIST.** **M. H. HUNT, Bell Branch, Mich.**

Please mention GLEANINGS.

1tfdb

For Perfect Draft, Simplicity, and Durability,

BINGHAM PATENT SMOKERS, AND

BINGHAM & HETHERINGTON UNCAPPING - KNIVES

ARE WITHOUT QUESTION

THE BEST ON EARTH.

Send for descriptive circular and testimonials.

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞ In responding to this advertisement mention GLEANINGS.



Vol. XVIII.

FEB. 15, 1890.

No. 4.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

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MARKETING HONEY.

VALUABLE HINTS THAT EVERY BEE-KEEPER SHOULD READ, BY J. A. BUCHANAN.

In your issue for Jan. 1 you have an article written by J. B. Colton. He wishes to know what is the most acceptable and economical package to use for retailing extracted honey, in large cities. If the honey is to be sold by city dealers, or even by the producer, the package must be charged to the account of the purchaser of the honey; and to make it "acceptable and economical," the package must be worth all it costs the purchaser, else he will soon see that he is buying something valueless. Mr. C. says he has succeeded pretty well with the $\frac{1}{2}$ -lb. glass pail. If these pails are so constructed as to be air-tight they might do; but why not use Mason's pint, as these hold $1\frac{1}{2}$ lbs., if you like this quantity; and as they are air-tight, the honey will not candy if put in them at nearly a boiling heat. This package, when bought in large lots by the bee-keeper, can be given to the purchaser of his honey at a reasonable price, and it is always worth as a fruit-jar what it has cost him. The use of tumblers, glass, or tin pails, for putting extracted honey on the market, will never do, unless strictly air-tight. In selling honey last fall I saw in the retail stores thousands of pounds of candied honey. From curiosity I often dropped in to see what the storekeepers had to say about the honey that had candied on their hands. Taking a jar or can of it in my hand I would say to the dealer, "What have you here?" Some would say that it was honey, but that it had candied; but the most of them would say, "I bought that stuff from a man who lives out in the country. He told me he had the bees, and raised his own honey; but from the appearance of it now, I think he raised most of it out of a sugar-

barrel. What he brought in first was all right, and sold well, but the last lot is a fraud."

I explained that the first bought was sold before cool weather came on; but that the last lot had simply candied, as it is so affected in the liquid form by a low temperature. I want to emphasize with some stress, that it will not do to use packages for extracted honey unless they are easily made air-tight, and the honey sealed up while hot. Mr. Colton suggests that the pails that might be returned to the groceryman could be refilled by him from a 60-lb. can. Not many grocers will be troubled with this business, and especially after the honey has candied in the large can.

We bee-keepers must solve one problem more before we consider ourselves masters of the situation. We must discover what treatment, or what may be added to liquid honey, that will retain it, when we desire it, in this form. Just so long as the honey we sell, either to grocers or consumers, candies on their hands, there will be complaints, and suspicion of its purity. Talk about educating the public to know that this candying propensity of honey is the only guarantee of its purity is all a waste of time. Better add something to the honey that will retain it in the liquid state, and have no talk about its "going back to sugar," and "sugar-fed bees."

My elder son and I have canvassed many towns and small cities this season, selling honey; and our extensive experience in the business convinces us that there is still a growing mistrust and suspicion concerning the purity of honey, and that much of this distrust is created in the minds of the people because the nice clear honey they bought and liked so well had, as they say, "gone back to sugar."

I have talked myself tired a thousand times, to convince the people that there is no such thing as manufactured honey now on the market, but it

scarcely pays to waste time in the effort to drive away suspicion.

CAN WE MAKE MONEY, BUYING AND SELLING HONEY?

In Notes and Queries Mr. Nance wished you to tell him if he could make money by buying and selling honey. Replying, laconically, you said: "Without knowing our man, I do not know how we could answer." There are but few good salesmen when it comes to selling honey. This is a product, the sale of which must be pushed. People do not generally volunteer to go to the bee-keeper to buy, unless the price is put very low, which often creates a good run; but to sell at the highest price, it is necessary to go to the consumer with samples, get orders, then deliver, giving some days for preparation to meet the bill.

No, it will not pay to buy honey to sell again if sold to grocerymen, as they will get about all the profits. If you are a good salesman, sharp and shrewd in business, and will look well to the details, selling direct to consumers, you can do a good business.

HOW TO DEFEAT, IN A LEGITIMATE WAY, FARMER BEE-KEEPERS WHO CUT PRICES.

I have met a good many bee-keepers on the streets this season who were offering honey at low prices, but even then it seemed to sell slowly. I am naturally sympathetic, and take a good share of comfort in helping brother bee-keepers get rid of honey they are offering at ruinous prices. What I have to say on this subject will be an answer to a question put to me by friend Rambler in a letter to GLEANINGS some time ago, which was something like this: "As J. A. Buchanan has had much experience in selling honey, will he tell us what course he pursues when he comes in competition with persons offering honey at low prices?"

We resort to many expedients to defeat those simple-minded bee-keepers who exercise such poor judgment in selling their honey so low as not to pay the cost of production. We generally aim to get the first honey of the season on the markets near us, establishing a good price, which goes a good way toward governing others in their sales; but when we do find persons selling so low as to injure the markets we give them a lesson not soon forgotten.

To illustrate: Last fall my son and I were soliciting orders for honey in one of our near towns, selling extracted honey at the rate of 6½ lbs. for \$1.00, we furnishing screw-cap can for the same, and one-pound sections at 22 cts., taking no orders for less than 5 lbs. We had not been working long before we found that there was a man just ahead of us selling two pounds of comb honey for 25 cts., and 11 lbs. of extracted for \$1.00. This was more than we could stand, so we started for his wagon. Finding him I said to him, "My friend, are you the man who is selling honey?"

"Yes," said he; "come and look at it."

I remarked that the honey was good, and asked him if he had been selling much. He said it was rather slow; that he thought of trying to sell out at the stores pretty soon.

"Now, if you will put the price down pretty low," said I, "we will take it off your hands at once." We bought his little crop, paying 7 cts. for extracted and 11 for comb, in pound sections. He had 900 lbs., half comb and half extracted. Now, we went on that day and took orders for all that honey, clear-

ing \$70.00 on this lot! This paid us well enough for our great "sympathy" in this case.

I will further say to Mr. Nance, that, from my observation and knowledge of the business of buying and selling, if bee-keepers can not sell their own honey at good prices, it would not be worth while to try to deal at all in honey.

By way of encouragement, I may say to those who may want employment, that we make it pay to handle honey. After selling our small crop this season, 6000 pounds, my elder son (20 years old) and myself bought and sold 31,000 pounds, clearing \$850. We did this work, too, in less than three months' time. We bought direct from producers, where honey was plentiful and cheap, and sold direct to consumers, thus benefiting those who were looking for an outlet for their large honey crop, and at the same time furnishing profitable employment to ourselves after we had no more to do at our own apiaries. Now, this is the kind of business that we "add to bee-keeping" to fill out the unoccupied time. It has been suggested, that I hurt my trade by describing my methods of selling honey; but I do not think I have ever lost any thing by trying to benefit my fellows. True, some bee-keepers have taken up my plans, and have appeared in competition with me in my own markets; but for all this, my trade keeps growing in a satisfactory way.

J. A. BUCHANAN.

Holliday's Cove, W. Va., Jan. 8.

INVERTIBLE BOTTOM-BOARDS FOR THE CELLAR.

DR. MILLER ARGUES IN FAVOR OF THEM.

WITH no desire for controversy, but just because I believe the matter somewhat important—indeed, quite important—I want to say a word in reply to Ernest's remarks on page 51. You say, Ernest, that Mr. Boardman winters successfully, and I don't. Now, it's just that difference between my wintering and his that makes me very much interested in this bottom-board. I suspect his bees do better because there is never any difficulty about the air getting at the cluster easily; and if that were the only way to accomplish it, I wouldn't hesitate now to throw away all my bottom-boards and pile up my hives in the cellar, just like his. Suppose we look at one of his colonies in the cellar. The cluster hangs down below the bottom-bars; and if the usual bottom-board were there, the bees would be all over it, and perhaps filling the entrance, so that no air could enter, except such as might be strained through these bees at the entrance. It looks reasonable that Mr. Boardman's bees are better off with free access of air on all sides than they would be with this close bottom-board, and the usual entrance of 4½ square inches, and that entrance filled with bees. But a board might be directly under Mr. Boardman's cluster without doing any harm, so long as it did not touch the cluster, and I suspect the closing-up of three sides would make no material difference. Now, that is just exactly what I have with my deep bottom-board, only in some cases the cluster comes down and touches the board below, in which cases I think it would be better that the board be deeper. In no case has there ever been any inclination to cluster at the entrance; and as it is now near the end of January, I think there will be none. The entrance is from 5

to 20 times as large as they have had in former winters; and my hope is, to have friend Boardman's advantages without the attendant disadvantages. So far I am fully satisfied; and as I look into each hive and see the nice clusters hanging down surrounded with abundance of air, I can not but feel I have made quite a gain.

Now, if you please, Ernest, let me attend serially to your objections.

"More expensive." Yes; but five cents per hive will, I think, cover the extra expense, and I believe the advantage will pay it in a single winter. If it is valuable, we ought to be willing to pay for it.

"A body adapted to such a bottom-board could not be used for a super." Certainly—all you need is to put on the plane side of my bottom-board a $\frac{3}{8}$ -inch strip at the back end and the two sides, just like your present bottom-board, and it will be all right for the Dovetailed hive.

"Why not leave the bottom-board off entirely?" The bees will winter as well, possibly a *very little* better, with the bottom-boards off entirely; but I think that, when advantages and disadvantages are considered, I would rather have the bottom-boards on. The screws are put in *once* a year only. I want them just as secure as for shipping; and if the "loop and stick" does not make a hive secure enough for your shipping, it is not secure enough for my hauling. The hives are put into the cellar just as they were in the out-apiary; and when they are taken out in the spring, ten seconds will make each hive ready to put back on the wagon. About a hundred hives in the home apiary were taken into the cellar without having bottoms fastened, and that experience makes me think that, hereafter, I should fasten on bottom-boards if there were no other reason for it than the convenience of carrying into the cellar. Please remember that it is a very short job to drive in four screws, when the hive does not have to be turned over. One trouble with these hives carried in without reversing bottoms, was, that, when we went to lift them up, a considerable cluster of bees was left on the bottom-board on the stand, and we had to prop up each hive at one end two or three inches, and let them stand thus a number of hours for the bees to get off the bottom-board; and then when we did carry them, a good many bees kept spilling out, and occasionally an attack was made, while those with bottom-boards fastened on could be picked up at any time, and carried into the cellar, with no trouble. Another item that I value is, that, with these bottom-boards, mice are completely shut out by the $\frac{3}{8}$ -inch-mesh wire cloth that is pushed into the saw-kerf at the entrance (I am sorry the illustration on page 50 does not show the saw-kerf). It is all well enough to say mice should not be allowed in the cellar; but I have not succeeded in keeping them out; and with the old way, I always carried some in, in the hives.

Now, my dear Ernest, while I am not fully satisfied with these bottom-boards, I strongly suspect that, if you should give them as much of a trial as I have done, you would find yourself pronouncing them "good" till something better was found to take their place. Although I have fought your objections with all the strength "la grippe" has left me, I am none the less thankful for your criticisms.

C. C. MILLER.

Marengo, Ill., Jan. 23.

I agree exactly with the sentiment you

express in the first sentence, doctor. While I may appear contrary, I only wish to get at the facts. I know that, when any thing works well, as you say your bottom-boards do in your cellar, it takes a multitude of controverting testimonies to make us even change our opinion. Boardman's plan of piling up hives without bottoms does work most admirably, so far, in my cellar; and the fact that such men as L. C. Root, G. M. Doolittle, Elwood—yes, and I believe Capt. Hetherington—and R. L. Taylor, all of whom, I believe, winter bees successfully, use no bottom-boards, or, at least, raise the hive up so far from the bottom-board that it amounts practically to the same thing, has great weight with me in arguing in favor of no bottom-boards.

You say, friend M., that you suspect the closing of the three sides would make no material difference. Perhaps you are right. But Mr. Cutting asked me, when he visited my cellar, what temperature I tried to maintain. I told him 45. He then remarked that he thought he could get better results by having it as low as 40 degrees in his cellar. Upon questioning I found that his hives had bottom-boards like yours. Now, it will be evident that the internal temperature of the hive whose bottom is covered will be higher than that of a hive without a bottom-board. Hence, if hives have bottom-boards, the temperature must be kept lower in the cellar than in a cellar where hives have no bottom-boards; and during very warm weather we all know that it is difficult to keep the temperature down so low as 40°.

In regard to those screws, I know from experience that we can not always screw the bottom-board in the same place—that is, so the screw-holes of the bottom will match the screw-holes in the hive; and unless we can make them match, we are always having a whole lot of holes either in the bottom-board or in the hive; and after a while it will be one big hole. I am quite sure that the loop which Rambler uses, or the double loop, to hold the cover and bottom, will stand more rough roads than will the loose hanging frames which you use, however well they may be stuck down with propolis and brace-combs.

You say, that carrying in hives that are bottomless will result in the loss of a considerable number of bees which will cling to the bottom. Very true, under some circumstances. But you know, doctor, that Mr. Boardman explained that the bottomless hives should not be carried into the cellar unless the weather is moderately frosty, or cold enough to make the bees cluster up pretty tightly in the frames; that is, clear away from the bottom-board. We carried a few hives and found bees clinging to the bottoms. We waited till it got colder for the rest, and had no trouble.

Now, doctor, I have argued in favor of the bottomless side of the question. Here is a letter which will sustain your side:

REVERSIBLE BOTTOM-BOARD; ITS USE FOR CELLAR WINTERING, MOVING, ETC.

Dr. Miller and others give us some good ideas of a space below the frames, but they do not seem to

describe all their advantages. I make them nearly as described on page 50, by the doctor, only the sides are perforated with longitudinal slots $\frac{1}{8}$ inch wide. These slots are covered with wire cloth. This is a decided help for moving. Now, the end which the doctor fastens with wire cloth, I fasten with a wooden end hinged so it will swing its entire width.

Dr. Miller has trouble with the hives sliding around on the bottom-boards, and goes to the tedious task of screwing them on. I have used the Vandeusen hooks extensively for ten years, and consider them indispensable in practical bee culture. Every one is placed in the center of the side of the hive, and $1\frac{1}{2}$ inches from the bottom. A screw to hook on the bottom-board is $\frac{1}{8}$ inch from the top, so that they are perfect-fitting. In each corner of the bottom, drive a small wire nail nearly in, then cut off to within $\frac{1}{8}$ inch from the board; and as the hive is placed on the bottom-board the little spuds will pierce into the hive enough to hold all firm, and I feel a great relief to think I have a hive with a bottom fastened so solid, and yet have it movable.

Now a word about using this board for winter. I set the hives into the cellar, one on top of another, as you would cord up boxes, etc., with the movable end so I can easily get at them. Before the bees are stored in the cellar, each hive has a stiff paper spread upon the bottom-board, and the bees are closed in for the winter. How we enjoy moving the bees into the cellar and out again, and none of them allowed to come outside! Three or four times during the winter we take a basket to the bee-room, open the end, draw out the paper, shake all the dead bees and other refuse off into the basket, replace the papers, and we are rid of all bad smell and the trouble of sweeping the dead bees from the cellar. And, besides, we save a great many bees which wander out of their comfortable quarters in carrying out the dead.

The reason which caused me to invent this board or space was based upon two principles. Twelve years ago I swept up half a bushel of dead bees from the cellar bottom. They were left in a warm room about an hour, when, to my surprise, hundreds revived. I then came to the conclusion that many bees die which might live if they were confined in a way so they could not worry; and with me the plan works satisfactorily.

The second principle depended upon the fact that, without any space save the $\frac{1}{4}$ or $\frac{3}{8}$ inch beneath the frame, the dead bees would often accumulate between the combs several inches deep, often mingling with the cluster of live bees.

In conclusion I will say, this space of $1\frac{1}{2}$ inches beneath the frames for moving, and for accumulation of dead bees and other refuse material, and for confining them in winter, fills the bill for me.

MOVING BEES.

Before we move our bees into the cellar, we place upon each hive a wire screen; a frame is made of lath, and covered with a piece of wire cloth just the size of the hive. At each end are driven wire nails $1\frac{1}{2}$ inches apart, long enough to reach through $\frac{1}{4}$ or $\frac{3}{8}$ inch into the frames. You will see that, when this screen is nailed to the top of the hive, every frame is fastened at once by the points of nails projecting through as described. Now invert the hive or set it on end, and have a strip $\frac{1}{4}$

inch thick by an inch wide, with carpet-staples driven in so they will space the frames just right.

Loosen the bottom-board; arrange the spacing-strip, hook on the bottom-board, and, if you are afraid the hooks will slip, drive a small wire nail just back of them, and they are ready to pile into your wagon, combs to go lengthwise or crosswise of the wagon, as best suits your convenience.

Oswego, N. Y., Jan. 21.

F. H. CYRENIUS.

Thanks, friend C. And I want to say to the others who criticised me pretty severely because I advocated fastening the bees in their hives while in the cellar, that the above shows that I am not the only one who does it successfully.

THICK TOP-BARS AND BRACE-COMBS.

OLIVER FOSTER'S EXPERIENCE WITH 4000.

OWING to ill health, and the care of three large apiaries and a good supply trade, I have not been able to read the bee-papers much, not to speak of writing for them, as I should like to do. But being confined to the house two or three days with the grippe, I have read the last two numbers of GLEANINGS, and feel constrained to give my experience with thick top-bars and brace-combs. Last spring I had 4000 brood-frames, made like sample I mail you herewith; top-bars $\frac{3}{8}$ inch square. I would have made them $1\frac{1}{8}$ inches wide, but for the influence of Bro. Heddon's articles, so strongly advocating top-bars just $\frac{3}{8}$ inch wide.

Ten of these frames are used in the L. hive, $14\frac{1}{4}$ inches wide inside, the same as the Simplicity. The spaces between the top-bars are $\frac{4}{16}$ of an inch wide, or a little more than $\frac{1}{2}$ inch. I put nearly all the 4000 frames to practical test. I had a great deal of sealed honey deposited between and over these top-bars, not to speak of brace-combs, and bees not crowded either. I tell you, it makes work to cut out half a pound of honey and wax from between top bars before we can go through the brood-nest with any satisfaction. They were a little worse on the "regulation" top-bars, but not much. Our bees seemed to have a mania for brace-combs this season. Do they build them above the break-joint honey-board? Yes, and in every bee-space between supers above.

The only object of the break-joint, as I see it, is to increase the bee-space distance between the brood and the sections. The same object can be secured by having these bee-spaces run straight up, if far enough, as by having them run zigzag, as with the break-joint honey-board; but we want it to be *bee-space*—not half an inch or more.

I do not wish to criticise the break-joint honey-board—the best thing that has yet been perfected, nor its inventor, to whom we all owe very much for the invention; but if we can prevent brace-combs between and over the top-bars, which I believe no one claims the break-joint honey-board will do, we shall make a great advance. From experience with 30 colonies the past season, I am satisfied that this can be done. If not by reducing the space between the deep top-bars to $\frac{1}{8}$ inch, we can do it by inserting a strip of perforated zinc at the bottom of this space. Cut the zinc $\frac{1}{4}$ inch wide, and put one row of holes near one edge. Bend at right angles the long way, $\frac{1}{8}$ from this edge. Nail the wide side to the top-bar, so that the perforated part will close the bee-space between it and the adjoining top-bar

at the lower edge of the bars. Perhaps this will be unnecessary with the proper space between the top-bars, which, I think, is $\frac{5}{16}$ inch.

I should like to ask friend Heddon how he harmonizes the three strong points he makes on page 44; viz.: 1. Top-bars $\frac{3}{4}$ inch wide; 2. 8 of these to $11\frac{1}{4}$ inches; and, 3. " $\frac{5}{16}$ is the best passageway for bees." If he makes the passageways $\frac{5}{16}$ he must make his top-bars $\frac{3}{4}$ wider, or else space his frames that much closer; $1\frac{1}{16}$ is the right width for $1\frac{3}{4}$ spacing.

Mt. Vernon, Ia., Jan. 24.

OLIVER FOSTER.

Your top-bars, according to the testimony received thus far, lack just one important feature to prevent brace-combs; and that is, they are too narrow. If they had been $1\frac{1}{16}$ inches wide, or even a plump inch, as you intimate—at any rate, wide enough so that $\frac{5}{16}$ of an inch will be left between the bars, you would have had no brace-combs, if the overwhelming testimony thus far received is correct. We have watched quite closely the reports, and we find that, where there is $\frac{1}{2}$ inch between the bars, more or less brace-combs are the result. In regard to those pieces of perforated zinc, there is another thing you had not thought of. They will fix the frames, and they would always be ready for moving bees. The objection to them would be, that they might, after a while, become stuck and daubed with propolis. Mr. Heddon may answer about the honey-boards. He will have to be advocating wider top-bars now. By the way, when he gets those thick top-bars in his new hive, what will become of his comb space? Bars $\frac{3}{4}$ inch thick, above and below, in these shallow frames, will leave the brood-combs only about 3 inches deep. In my opinion, there wouldn't be much brood-nest left.

ERNEST.

THE CHITTIES' EXTORTIONATE USURY.

SOME OF THE EVILS AS A RESULT OF THE LACK OF CHRISTIANITY.

MR. ROOT:—GLEANINGS has become a looked-for visitor to this land of the antipodes. The back numbers have been preserved, and I mean to have them bound and present them to the Sir Stamford Raffles Library of this city. Little is known of, but some interest is shown in, bee culture.

In regard to the champagne-bottle and glasses in the fruit-picture, I wish to say that I bought the picture at the photographer's gallery, and had nothing to do with the arrangement, or I should certainly have left it out of the group. [P. 701, 1889.]

To one unacquainted with oriental races, the most interesting feature of this great city is the vari-colored skins and costumes that meet the eye, and the widely differing tongues that greet the ear. All the European nations are represented—the English, Germans, and Dutch (or Hollanders), predominating. There are also natives of China, Malaya, Burma, India, Siam, Japan, Arabia, South Africa, Egypt, Persia, Armenia, and the dispersed sons of Israel. Of the several Indian races represented, one of the most interesting is the Hindu caste known as "Chitties," or money-lenders. I send you a photograph of two of these money-sharks.

Lest some of your readers may think I am indulg-

ing in fiction, I will say that I relate only the sober, honest truth. There are hundreds of these fellows in the city, and their sole business is loaning money at ruinous, even fabulous, rates of interest. They are heathen indeed; but no more so in faith than in practice.

Scanty, but neat in their dress; fat and well-favored, destitute of hair or beard, and striped with whitewash, they are striking characters in the ever moving drama of street life. Often rich, they are always penurious. They live crowded together like sheep, in houses that might be decent; but, to suit their manner of life, are made to appear more like badly kept barns than human habitations. Unclean in their habits, they do not seem to regard a double-distilled stench as any drawback to either health or happiness. I have passed some of their



THE CHITTIES, OR MONEY-LENDERS.

houses in the native portion of the city, where goats and fowls moved freely in and out, and a stream of accumulated filth oozed its way slowly along the gutter just at their door. Nor are other oriental races more righteous in this respect than the Chitties. Indeed, the Chinese will excel them all, with this qualification—that a wealthy Chinaman lives well, and with at least moderate respect to cleanliness and decency. The Chitties are Hindus in religion, and this is indicated by their manner of dress, their shaven heads, and their business. Among the Hindus—there are many natives of India who are Mohammedans—the Chitties have the monopoly of the money-lending business. A Mohammedan would never patronize a Chitty, and a Chitty would no sooner deal with a Mohammedan. They purposely shave all hair from their heads, and beard from their faces. Their ancestors for many generations have done it, and their posterity will continue to do it for many generations more. It is a distinctive mark of their caste. Not

a hair is allowed to grow. They wear no turban or head gear of any kind, unless an umbrella can be so classed. They indulge in a few ornaments, which are generally very costly. They are often seen wearing a deeply engraved pure gold ball set on the outer lower lobe of the ear, *a la mode* of our western belles. Sometimes a diamond sparkles in the gold. The deep yellow of the gold and the white light of the diamond present a rich and striking contrast to their dark skins. If they are very well-to-do they wear a similar ornament held in place on the front side of the neck by a fine gold chain or a silk cord. Sometimes costly rings adorn their fingers.

The white streaks on their foreheads, arms, and breasts, are at once a caste-mark and a toilet requisite. They are easily washed off, and are daily renewed. Their sandals are of a pattern much worn in the East. Their entire suit, if a name so dignified may be applied to their abbreviated garb, costs little more than a dollar and a half or two dollars. It may be said, that these fellows could with difficulty wear less. To the untutored American, the proposition seems more than true; but not a day passes that we do not see scores of municipal coolies handling the pick in street repairs, that are, to all intents and purposes, naked. Most of them get twenty cents a day; and two or three yards of four-cent cotton or calico makes them a fine suit. It is wound once or twice around the loins, and extends from front to back. These poor fellows are better off here than they would be in India, for there their daily wages would not exceed eight or ten cents, and they would be very glad to get moderately regular employment at that price. You can see from this that poverty is unknown in America. The poorest man in Ohio would be a nabob alongside the outcasts of India. Their diet is confined to cooked rice and a little curry made of the commonest vegetables, fish, or the cheapest meat. No bread, no drinks, except water, no meat. Can I be believed, when I say that millions in India go to bed hungry every day, because they do not get enough of this severely simple fare to eat?

I remember how my heart ached when I first comprehended that these low castes of India have little or nothing but simple rice and curry to eat, from one year's end to another. These are the people our missionaries in India are trying to save, and they are beginning to come by the hundreds and thousands. Last year, in our North-India Mission, fourteen hundred of these poor villagers were baptized, and as many more were denied this sacrament until they could be more perfectly taught.

I hope the readers of GLEANINGS will think of the poverty of these people when they sit down to their heavily laden tables, and look at their well-filled cellars and barns, and not withhold the tithe that belongs to God by right, and along with it give something to evangelize the heathen when the missionary collection is taken: for all our home churches have such a collection.

The Chitties are a difficult class to reach in India, and no effort is made to do it here. In Singapore there are a hundred thousand Chinamen, fifteen or twenty thousand Malays, and at least as many "Klings," or low-caste natives of India. The Chitties can be counted with three figures. Our work here is mostly among the Chinese. The Chitty is without soul, or as near it as a heathen can be.

One instance will suffice to illustrate their rapaci-

ty when dealing with men in a helpless position. The pastor of our English congregation related the following almost incredible tale at the tea-table a few days ago:

A poor man in the town fell sick, got in arrears with his rent, and was at last driven by his landlord to either pay up or vacate. He went to a Chitty to learn upon what terms he could borrow a hundred dollars, and this was the best bargain he could make: The Chitty said, "I will loan you a hundred dollars on these conditions: You write me your note for a hundred dollars, to be paid in monthly installments of ten dollars. I must charge you thirty dollars for the use of it, and I will deduct the interest and pay you seventy dollars down."

The poor fellow was between the upper and nether millstone of a merciless heathen landlord and a more merciless heathen Chitty; and how could he escape being ground to powder?

Will some of your readers tell me the rate per cent this man had to pay? It is a puzzling problem that confuses most of the victims of these Shylocks. I make out that he paid no less than 128½%. He receives \$70 for his \$100 note. In one month he returns \$10, and has \$60 left. He has had the use of \$70 one month. At the end of the second month he pays the Chitty \$10 more, and has \$50 remaining. He has had \$65 for two months. At the close of the third month he has \$40 remaining, and has had the benefit of \$70 for one month, \$65 for two months, and \$60 for three months. Follow this out, and you find his principal continues to decrease at a compound ratio, until, at the end of seven months, he has returned the \$70 he borrowed, and still owes the \$30 interest, so that he has had \$40 for seven months, or \$28 for ten months, and pays \$30 for the use of it! Compound interest with a vengeance! Nor is this an uncommon occurrence.

The Arabs and Chinese are quite as unscrupulous; but as the former are landlords and the latter merchants, we hear less about it. *Any* man who knows not or fears not God, and is unrestrained by public opinion, would do the same. The unscrupulous stock gambler and speculator, the trust-maker, the bank defaulter, are what they are for the same reason that the Chitties are what *they* are. The remedy for all of them is the gospel of Jesus Christ, which teaches, "All things whatsoever ye would that men should do to you, do ye even so to them."

RALPH W. MUNSON.

Singapore, S. S., Nov. 25, 1889.

Amen, Bro. Munson. Jesus Christ is the remedy, and the only remedy, for all sin and extortion in every form. In some places in California I witnessed a similar custom of extortion. It was only among people, however, who were in tight places, and where the money-lender had to take the risk of getting undesirable property on his hands. Those who were well-to-do had no difficulty in getting money at eight or ten per cent interest, or perhaps a little more than we have to pay here. I am deeply interested in these Chitties you tell us about; but I confess I can not quite understand why you say they are without souls. The love of money is, I am well aware, a hard thing to deal with; but for all that, most human beings can be taught, sooner or later, that there is a better thing in this world than even money.

GETTING BEES TO BUILD CLEAR DOWN TO THE BOTTOM-BARS

BY LEAVING AN EXTRA SPACE UNDER THEM.

The thing I like best about GLEANINGS is the deep enthusiasm and love for the business yourself, and your *good will* to all the bee-men, so that I have come to regard you as a personal friend; and I speak not only for myself, but for others who have expressed themselves similarly. The last time you were through here you had not much chance to get acquainted with the bee-keepers of Woodman.

There was a good deal said at one time in the journal about full frames of comb, some advocating reversible frames. Now, I don't believe in turning the cells upside down if it can be helped. I have about 600 frames of comb that are nearly all built down solid to the bottom-bar, and yet I never used foundation. The reason I assign for it is this: There is a space *under* the brood-frames, of about 2 inches in depth. Now, I think it is natural for bees, if left to themselves, not to build their combs *clear down* to the *bottom* of a cavity; and where the frames reach *nearly* down to the bottom-board it will be natural for them to leave that space, unless crowded for room. Some hives have the bottom of the frames so near the bottom-board that they harbor moths underneath; and it is more difficult for the bees and all concerned to keep them clean. One man in the last journal advocates giving a 2-inch space under the frames in winter, but reducing the space in summer, as it is not so well to have it at that time of the year. Now, if there is any thing wrong about leaving that space at *all times*, I should like to know it. If the space is left, the bees will certainly build the comb down to the bottom-bar. They may not all be built solid the first year, but they will in time. If this is of any importance I can give the exact space under my frames. If the space is too great they will build burr-combs under the bars. Once in a while they will do it on mine, but not often.

My uncle says he has observed, that, when bees visit the flowers, each individual bee will stick to some particular flower or species of flower. I have not noticed it myself; but if the thing is mentioned, there may be those who will observe. I have seen that, in gathering pollen, some bees will bring in one kind and some another, but I don't think I have seen different kinds of pollen on one bee. If it is as I have stated, it shows the wonderful adaptability of the wants of plants and animals to each other, as that would tend to the more certain fertilization of plants, and also prevent cross-breeding. I suppose it is well known, that Charles Darwin, in his experiments on the fertilization of plants, by confining, under glass frames, certain kinds that bees and other insects visit, discovered that, in some species, fertilization would not take place, so that, without the bees, some species would perish.

Woodman, Wis., Jan. 23.

J. MURRAY.

Thanks, friend M. Your kind letter recalls my pleasant two-hours' visit in your town. Your suggestion in regard to more space under the bottom-bars is a valuable one. One objection, however, is, I think, making bees extra trouble in getting from the bottom-board to the frames. With a space $\frac{1}{2}$ of an inch they very often if not always build little projections to climb up on.

I do not know that I ever tried two inches in the summer season. When we first used Kings' American bee-hives there was a cross-bar in the middle of the frame, and no bottom-bar at all; therefore the bees built the comb down as far as they wanted to, and stopped. I believe they usually stop somewhere at about two inches and the bottoms of the combs are very irregular. In fact, they were a good deal, as we find them in box hives. It has before been mentioned, that we can secure comb built clear to the bottom-bar by raising one frame a little higher than the rest. But I do not remember that anybody has suggested raising *all* of the frames in order to secure this result.—Your suggestion in regard to why bees should never mix pollen seems to be a reasonable one, and indicates, as you suggest, divine wisdom.

BEE-HUNTING IN 1857.

ALSO SOMETHING ABOUT BEARS AND THEIR HABITS.

I HAVE a bee-book with your name to it, and I should like to know whether you realize much from the 4000 basswood-trees you set out in 1872. They must be quite large by this time.

Last spring I had 4 swarms of bees. I got 250 lbs. of section honey, and have now 15 swarms.

I hunted bees a little one season, years ago. I found eight swarms, summer and fall: the lightest weighed 25 lbs.; the two heaviest, 200 lbs. apiece. I saved one swarm in a pine-tree. I cut it out of the top, and let it down with a rope. I kept them in the log, standing up. They did very well. In December, when the snow was six inches deep, I went hunting and came across a bear-track. I followed the track very cautiously for half a mile; then I discovered that the bear was a bee-hunter. He was climbing every tree that looked like a bee-tree. He went up twelve or fourteen trees, then turned down into the valley. The first tree he went up was a bee-tree. I went up on the ridge to the road, and marked the tree. Then I went back to the track, and, following about a mile, he went up on the ridge. He did not go up any more trees. I went up on the ridge where he had been sitting down, watching for me, which they will always do. Well, then he went off on the jump, and I put for home. In a short time I took my neckyoke and two saps, each holding 20 quarts. The tree was white oak, 20-inch stump, leaning in a bow, so the top nearly touched the ground. The bees went into the tree 20 feet up on the under side. They had a nice place. I cut the tree down. I cut in where the bees were, and took out the honey. I filled the two pails, went home, came back, got two more, went home, then it was dark. In the morning I went back, took out two more, then I went and cut in three feet from the butt, and struck honey; and if I had cleaned out the butt I could have seen the honey. I left my pails, went home, got my horses and bot-sled. I had to go about six miles to the tree. The way I went first was two and a half miles. I took a large wash-tub. After I had got all the honey out of the tree into the tub, I put in one pail full, which was all I could get into the tub. I must have had nearly 300 lbs. It was good honey, no empty comb. There are no such trees nowadays.

There are too many bee-hunters now. That was in 1857. The next spring I killed one old bear and two cubs. It was excellent meat. NATHAN CULVER.

Ontario, Wis., Dec. 27, 1889.

Friend C., nearly all of our 4000 basswood-trees are growing; but as they were planted on a poor worn-out piece of land, a good many of them have not made as much growth as we expected. Some of them are six inches through, and bear quite a quantity of blossoms; but it takes a great many years to get a basswood orchard to bearing honey, especially when you commence by planting trees. Better adopt the plan I spoke of in the last issue.—It never occurred to me before, that bears must climb one tree after another, to find one that contains honey. They must be very patient if they always hunt bees in that way. Your sketch of bee-hunting would almost give one the bee-hunting fever if there were many such trees nowadays.

DIGESTED NECTAR.

CHAS. DADANT REVIEWS PROF. COOK'S ARTICLE,
PAGE 53.

THIS term "digested," when applied to honey, lacks convenience and accuracy. The idea of digestion comes to the minds of us unlearned people with the thought of its whole process as we find it described in the *Chambers' Encyclopedia*: "Prehension of food, mastication, insalivation, deglutition, chyli-fication, defecation, and absorption of the chyle." This definition of the word "digestion" is not confined to England, for we find, in the French *Dictionnaire de Medicine*, of Littré and Robin, "Digestion is the dissolution and liquefaction of the food, with absorption of the substances dissolved and liquefied, followed by the defection of the residues." Therefore the words, "digested nectar," if applied to honey, would prejudice some consumers rather than incite them to buy.

Of course, a scientist may argue that, as the nectar undergoes a change in the first stomach of the bee, this change can be called digestion; for, when a druggist mixes several substances, with a view to obtaining a combination, he calls the process a digestion. But the stomach of a bee is not the laboratory of a drugstore.

As to the inaccuracy of the term "digested," Prof. Cook himself proves it in his essay read at the International Bee-Keepers' Convention in Brantford, and in the discussion which followed (*American Bee Journal*, Dec. 28, page 832), where he says: "All honey is not equally reduced, not fully digested." It seems to me that, if something is half done, we are not accurate if we say that it is done.

This difference in the modification of nectar in the first stomach of the bee can not surprise us, not only because the nectar sometimes does not remain long in the stomach, but also on account of the difference in the relative quantities of cane sugar to be converted into glucose—some nectars having no glucose, while others have no cane sugar. Mr. DePlanta found in the nectar of the *Protea mellifera* 17.06 per cent of glucose, and no cane sugar; while the nectar of the *Hoya carnososa* contained 4.93 per cent of glucose only, and 35.65 per cent of cane sugar (*Bulletin Internationale d'Apiculture*, Oct., 1888). Then the bees had no change to make for the

first of these nectars. Would Prof. Cook consider it as already digested in the flower?

The above experiments show, also, that Prof. C. is mistaken when he says, page 53 of *GLEANINGS*, that "nectar is cane sugar dissolved in water;" since the nectar of the *Protea mellifera* had glucose and no cane sugar. The causes of these differences in the composition of nectars are fully explained by Gaston Bonnier, who, indorsing the views of Claude Bernard, writes in his book, *Les Nectaires*: "There is always an accumulation of sugared substances in the flowers, near the ovaries. When these organs are completely developed, this accumulation of sugar decreases, and the proportion of saccharose (cane sugar) becomes relatively smaller, the saccharose being transformed into glucose under the action of an inverting ferment."

It follows from the above, that a nectar just secreted in a flower contains more cane sugar and less glucose, while another, which has remained for some time in the flower before being gathered by bees, has more glucose and less cane sugar.

A great many substances can undergo, in their composition, a change analogous to the modification effected in the stomach of bees. For instance, starch, cooked and masticated, is converted into glucose by the saliva, and can be assimilated without further change, although the variation was effected before the deglutition.

□The pulp of a green grape is of difficult digestion; but by ripening, it is converted into liquid grape sugar, which can be converted into wine. Both these liquids are readily assimilated by the intestines.

If we leave a mixture of cane sugar and water exposed to the light, all the sugar will be converted into glucose. Will Prof. Cook say that all these substances were digested? No, of course not. Yet he said, at the above convention, that "honey is digested, since it is in a condition to be assimilated without undergoing any change."

This assertion is far from being correct; for I have seen people getting indigestion by eating honey when the food of their last meal was not entirely digested. Had these people drank a glass of sugared water, or of wine, their digestion would not have been disturbed. Then honey is not so readily assimilated as our friend Cook supposes. Dyspeptics can not eat honey without increasing their distress. Furthermore, we see in *GLEANINGS*, page 62, that honey from *lobelia*, which is nauseous, is sometimes vomited. Is that honey digested, or ready for assimilation?

Honey contains, besides glucose, several substances which have to be converted in the true stomach of bees, by the gastric juice that it secretes. Then the digestion is far from being completed in the honey-crop.

In conclusion, I will say the professor had better abandon this unhappy term of "digested," and I think that a large majority of bee-keepers are with me to give him the same advice.

Prof. Cook, in his essay, said that he questions whether any chemist can certainly determine whether or not honey is pure. I find in the *Revue Internationale*, of July, 1885, a new method of analysis by Fritz Elsner, of Leipzig. Eleven samples of pure honey were introduced, one after another, in a Wasserbein apparatus; and the conclusion of the analyses was, that, in every kind of pure honey the quantity of sugar of fruits, or inverted sugar,

deviating to the left, is always strong enough to counterbalance the deviation to the right, of the natural grape sugar; or, in a word, every pure honey is either without action on the polarized light, or deviates slightly to the left, never to the right. These experiments were confirmed by others, in which from 5 to 20 per cent of manufactured glucose, after having been stored by bees in the combs, was mixed with pure honey, and which, every time, turned the light to the right. CHAS. DADANT.

Hamilton, Ill., Jan. 23.

Thanks, friend D. While I do not propose to take part in this discussion, there is one point on which I am prepared to give testimony. I often feel a little bit troubled on this point, when I see honey recommended so vehemently for food and also for medicine. Of late years it is not very good food for me, and, generally speaking, rather poor medicine. I never could quite understand it, either. I am very fond of sweets, and can eat maple syrup for supper, with perfect impunity; yes, I can take two or three spoonfuls of granulated sugar in my hot lemonade, just before going to bed; and instead of disturbing my sleep, it does quite the contrary. Now, there is something about honey that is entirely different. If I eat honey at all it must be in the morning or at noon; and even then it is quite apt to give me the headache. Whenever I eat it for supper there is trouble, and I have tried it hundreds of times. It is the worst article of food for me to digest that I have ever got hold of; and I can not discover that there is very much difference in the kind of honey. While maple sugar or maple syrup is harmless, honey is almost poison, if taken in the same quantities. My testimony would be, then, that honey is neither digested, nor very easily digestible. Perhaps, however, this has no bearing on the question. I have seldom mentioned this matter, because others seem to be differently affected, and also because it did not seem very consistent for a honey-man, and the editor of a bee-journal, to be putting in testimony *against* the use of honey.

THICK TOP-BARS.

MR. J. B. HALL MAKES A CORRECTION.

MR. ERNEST R. ROOT:—Your postal, also copy of GLEANINGS for Jan. 1, came duly to hand. Please accept my thanks. I am glad that you had such a good time at Brantford. But I think there was so much to be seen around the Falls that you must have become somewhat mixed in what you saw and heard in Brantford. An example on p. 17: In speaking of J. B. Hall you speak of his *Scotch accent*. Allow me to whisper in your ear, that the old fellow *never saw Scotland*, and he does not know a particle of that blood in his veins. The nearest approach to his being Scotch is in the fact that his wife was the production of a match of a Dutch-Yankee woman and a Scotch-Canuck man, and I think the presence of that amount of Scotch blood in Hall's wife would not affect his speech much. He came to North America in 1856, and settled in the largest and best part of it; namely, Canada; and at the time (I will say this for your benefit, as at that time you were not born), allow me to state, the

great English-speaking peoples in North America, both south and north of that "big wall" you speak of, lived as happy neighbors, and traded with each other freely, your own people selling us all of the following goods: Cotton goods of all kinds; farming implements; machinery of all kinds; ready-made clothing; hats, boots, salt, salt pork, cheese, etc., and you bought from us all of the following (that was A No. 1): Lumber, wood, grain of all kinds, with the exception of maize (corn), horses, cattle, sheep, swine, and all of our grand fish you wished, for the taking (although your men persisted in breaking our Sabbath laws), the product of the mine, iron, lead, copper, silver, gold, nickel, plumbago, phosphates, etc. In fact, your people used to buy all our raw products, and send them back to us after manufacturing. You were our "middle men." This has all been changed by the madness of some of your politicians, who clamored that the reciprocity trade should be annulled, and that those insolent fellows at the north should be kept there to freeze.

At this time, I, with most of my countrymen north of the "wall" you mention, felt hurt, and thought it a bad job for us; but it was a blessing in disguise; for Canada has progressed as she could not have done had the old state of trade continued, and the sixty millions of people south of the line managed the five millions north of the line.

To return to p. 17: I would say that the frame I use has a top-bar $20\frac{1}{2} \times 1$ deep $\times 1$ plump inch wide. I use 8 frames in my hive, $11\frac{1}{2}$ inches wide. Thus you will see a bee-space $\frac{1}{8}$ is maintained. In fact, all parts of the hive have this $\frac{1}{8}$ space between, to do away with brace-combs in any part of the hive. It was no blunder or chance that made the space $\frac{1}{8}$, but from experience and observation in handling bees. The last lot of Quinby frames I made was in 1881, number 3200. The top-bar was $20\frac{1}{2} \times 1 \times 1$ inch plump wide; end-bar, $11\frac{1}{2} \times 1 \times \frac{1}{4}$; bottom-bar, $18\frac{1}{2} \times \frac{3}{4} \times \frac{1}{4}$. I think you are a little hard on the old man, in attributing his doings about the apiary to accident and blundering; and I sincerely wish and hope that you will not make any worse blundering than I have done in frames and hives.

J. B. HALL.

Woodstock, Ont., Can., Jan. 20, 1890.

Very good, friend Hall. If the fact of my mixing up Niagara Falls with thick top-bars caused me to report your statements so crookedly as to induce you to write for print (even by way of correction) I do not feel so very sorry, after all, as it takes more than money to induce you to write. And now our readers have a correct statement of the facts. The expression, "blundering on to a discovery," was rather unfortunate; but as I understood you while talking with you between the sessions, you said that you at first did not intend to do away with brace-combs by adopting thick top-bars—your main idea being at first to do away with sagging; but the fact that this happy result (no burr-combs) was brought about by careful experiment and not by "accident" or mere "blundering," is more to your credit. I believe, friend Hall, you were the first to bring this important matter into public notice; for it seems that quite a number, after reading the report of your thick bars and no burr-combs, began experimenting; and now you see they are

starting up everywhere, substantiating your statement made at Detroit. Bee-keepers owe you a vote of thanks, if not something more substantial. Mr. McKnight, as you doubtless have noticed, has corrected me in regard to the Scotch accent; but there was something so pleasant (may I not say captivating?) in your conversation that I could not think of anything better to dub it by than "Scotch accent." In regard to that "big wall," I think I had better not tackle it again. It is a dangerous subject over here, and people sometimes get to arguing pretty fiercely. But there are good people (just like ourselves) over in the province of Ontario that I should like to have annexed to the United States, though I am not so particular about Quebec. ERNEST.

HOUSE APIARIES IN 1890,

AS CONSIDERED BY J. VANDERVORT.

As we have an occasional inquiry in regard to house-apiaries, and as I have of late years rather discouraged investments in this direction, I thought best to write to our friend Vandervort (the one who makes the nice foundation-mills), to inquire if he still used and liked them. Below is his reply:

Friend Root:—I still use the house-apiary, and like it as well as ever. When I saw you last I was keeping my home apiary in hives. I have since built a house at home, and use the house exclusively. I do not recommend it for public use. Aside from two parties in this vicinity who use houses on my plan with good success, all others are exclusive. It requires more skill to work a house than hives. The advantages that I claim for a house are, first, the control of temperature, which controls swarming in a great measure, and starts them to working in boxes sooner, and a cool night or two does not drive them out of the boxes as it does in hives outdoors, which makes a great difference in the amount of honey they store, especially in a very cool season.

Last, but not least, I can do the work for two colonies in the house easier than one out of doors. The objection to the house is, I lose more queens in mating, get more stings in handling, and lose more colonies in winter; but what are left breed up enough quicker in the spring to nearly compensate the loss.

J. VANDERVORT.

Laceyville, Pa., Jan. 24.

Very good, friend V. I am not surprised to hear you say that all others are a failure, and that it requires more skill than to work hives. The point you make, however, of controlling temperature and swarming, and starting and keeping to work the bees in the boxes, is a big item; and the final one, that you can do more work, is of more importance still. With ours we did not lose more queens than outdoors—I am inclined to think not as many. Ernest says, however, that the boys did not succeed as well. But I feel sure that, with only three entrances on a side, and six or eight sides to the house, you can get along without losing queens. I agree with you in regard to stings. All bees I have ever handled certainly sting worse indoors than they do outdoors in the open air. We think that,

with a house-apiary properly protected and kept in order, one can also work at any season of the year, with less trouble from robbers. Friend H. S. Hoxie, of Holloway, Mich., has just sent us quite an article for publication, in regard to the house-apiary he uses and likes. He uses ordinary hives placed back a little distance from the wall. A covered entranceway conducts the bees from the hives to the passageway through the wall. This passage *from the hive to the wall* can be easily uncovered; and when opening the hive he uncovers this passage. This permits all the bees that get out of the hive to go into the entrance as if they were outdoors. He can even shake the bees from the combs in front of the entrance as he does outside; and he says he has no trouble from bees getting into the house, on the floor, etc. There are so few house-apiaries at the present time, that we have not thought best to give very much space to such communications.

ALFALFA IN IDAHO

AS A FODDER AND A HONEY-PLANT.

DEAR SIR:—I see that you have solicited contributions upon the subject of alfalfa (lucerne). We here in Boise Valley, Idaho, as also in adjacent valleys, are engaged largely in its production, considering it the most paying crop that is produced upon the ranch. We invariably get three crops of excellent hay per season. Some cut four crops, or, rather, four times; but the majority believe that, to let it stand a little longer, and mature more, it makes a more nutritious feed, and is not so "washy," or laxative, as is the case when cut too green; hence the three cuttings will go as far, if not further, than four cuttings, and at a saving of labor.

Alfalfa is naturally a little laxative; but when cut at the right time it is an excellent feed, and will yield here from five to eight tons of hay per acre, per season, besides a quantity of fine grazing late in the fall. Sometimes one crop for hay is cut, and the second one is allowed to ripen for seed, and make from five to ten bushels per acre. It sells for \$6.00 per bushel. It is fine, so far as I have learned, in all arid districts, where water can be got for irrigation. It is a plant that will not stand much water—not nearly as much as the other clovers, and I believe that it does well in any sandy loam in any part of the country, and possibly in any deep loose soil. It is a plant that roots deep, and hence requires a deep loose soil, so it will hardly do any good on a clay or close soil. It improves for about three years; or, in other words, it takes about three years to get to its best yield; and it certainly is one of the best, if not the best honey-producing plant in existence. If the cutting of hay is properly managed it will give a forage for bees the entire season, and it yields as fine a honey as does white clover. It certainly will revolutionize apiculture as was never known before. The bee-business is certainly taking a prominent hold here. There are at least half of the farmers in this large valley that are starting in the business, generally on a small scale as yet. The apiaries range from 5 to 125 colonies; but none are carrying it on in a scientific or even a systematic way.

DAVID L. WILLIAMS.

Caldwell, Idaho, Dec. 21, 1889.

Thanks, friend W. I am somewhat surprised that alfalfa has been so long produced on vast tracts of land, without our having heard more in regard to it as a honey-plant. It is true, something has been said occasionally for perhaps ten or fifteen years; but when I made my visit to California a year ago I did not see nor hear of any great yields of honey from alfalfa; neither had it been found on the markets, so far as I could learn. Any plant raised by farmers, that produces honey by the car-load, aside from the purpose for which it is cultivated, is well worthy of our attention. I should be very glad indeed for further reports, especially where it produces honey by the ton.

APICULTURAL NOMENCLATURE.

R. M'KNIGHT ARGUES IN FAVOR OF THE ALREADY ACCEPTED TERMS, AS DETERMINED BY COMMON CONSENT.

ADVERTING to your issue of January 15, and to Dr. Miller's letter therein, anent apicultural nomenclature, I am led to reflect upon the imperfection of all sublimary things with which man has to do—bee-keepers' terms not excepted. Some one has said, that "proper words in proper places is the true definition of style." According to Dr. Miller, there is little style in bee-literature, for he hints at a misuse of words throughout. There can be no doubt that the doctor is a judge, and a good one too. Most assuredly, a gentleman who can write fifteen long letters on out-apiaries, without repeating himself, is no mean authority on the proper use of terms. One would think such a one would be free from the use of inappropriate terms; but, if I mistake not, he himself has given us some terms that will hardly bear criticism. Is he not the inventor of that inappropriate phrase, T super, or T-tin support? Is there any super in use that bears the slightest resemblance to the letter T? If so, I have not seen it; and a man's imagination must be vivid indeed that can see a resemblance between the tongued and flanged strips of tin used to support sections on a section crate to the aforesaid letter of the alphabet. The doctor is exercised about the correctness of many of the terms we employ. His suspicions hover around such words as super, crate, case, clamp, hive, apiary, etc. I have always thought that "common consent" has much to do in establishing the meaning of words; and by common consent a definite meaning has been given to each of the terms quoted. The doctor singles out a few of the terms that make him feel most uncomfortable in their use, such as crate, case, apiary. He tells us Webster defines crate to be "a wickerwork structure used for packing crockery in;" but Webster is dead, and the crockery-crate is no longer exclusively made of wickerwork. Many of them are now made of strips of wood instead; still, they are called crates. So are many other things made of slats or strips of wood. We have section crates, egg-crates, berry and fruit crates, none of which are made of wickerwork—properly so called, but we understand and know what the terms mean. What incloses sections while on the hive is not a box, for it is open above and below. By common consent it is called a crate. Let us be content with the term, for it would be difficult to find a more appropriate one.

It is no misnomer to call the wooden or partially wooden box in which comb honey is sent to market a *case*, for the term *case* means, by common consent, an outer protective structure, and has a wide application, both as to shape and the material of which it is made. We have not only a section-case, but we have gun-case, book-case, spectacle-case, clock-case, watch-case—yes, "through the crystal *case* the figured hours are seen," somebody tells us. Even the outer wall of a building was called a case before Webster was born; for Addison tells us, "The *case* of the holy house is nobly designed." Let us be content, then, with case.

I should be glad, if space permitted, to go through the list and try to help the doctor out of his dilemma, and establish him in the belief that "it is better to bear the ills we have, than flee to those we know not of."

I suppose your definition of an apary as "a place where bees are kept" will help to reconcile the doctor to a continuation of its use. I might assist you in this by citing the terms aviary, hennery, piggery, queenery, and grapiery, as being appropriate in their respective uses. He may retort, however, by saying, "If apiary means a place where bees are kept, then a cellar may be an apiary; so may a house, a barn, a clamp, or a shed, for bees are kept in all these places;" but common consent comes to our aid again, and restricts the meaning to the inclosure in which they are kept during their active life. The others are called their "winter quarters."

R. M'KNIGHT.

Owen Sound, Ont., Can., Jan. 21.

AUTOMATIC SWARMING.

G. M. DOOLITTLE EXPRESSES HIMSELF IN A HOPEFUL WAY IN REGARD TO IT.

THE following questions have been sent in to me, with the request that I answer them through the columns of GLEANINGS. 1. "It is well known, that, when a hive is full of bees, so that they begin to think of 'lying out,' they will crowd into any empty space which may be about the hive, much sooner than they will go on the outside of the hive. Taking advantage of this fact, suppose that, as soon as the sections are filled with bees, they being well at work, and before the swarming fever comes upon them, we bore a two or three inch hole in one side of the hive, and on the inside of the same put a piece of queen-excluding metal. Next, we will bore a corresponding hole of the same size in an empty hive, cover the same with the queen-excluding metal, and set this empty hive right up against the other, having the bees in it, so that the holes match, and then put a queen-cell in this empty hive. Now the point I wish to know is, will there not, in time, be a new swarm of bees in that empty hive?"

Well, now, this is a new thought, to me at least, and one in which I think there may a benefit arise to the bee-fraternity. That it will work just as it is given in the above question, I have my doubts; for I believe, from what I know of having queens fertilized in the same hive having a laying queen, that, when the young queen comes to take her first flight (if the bees ever cluster about the cell so it hatches, and preserve her till this time), she would, upon returning, go into the main hive and destroy the reigning queen, which would be a loss rather

than a gain. But what is there to hinder our placing an empty comb and one of brood in all stages into the empty hive, placing the comb of brood next the side having the hole in it, the empty comb next, and lastly a division-board? Now place in the queen-cell nearly ready to hatch, and I will warrant the bees from the old hive to go through the queen-excluding metal, take care of the brood and cell, care for the queen just the same as if she were in an isolated hive or nucleus, when in due time she will become fertile and go to filling the combs in this hive with eggs. From all my experience in the past, in raising queens, as given in my book, in having them reared above queen-excluding metal by the thousand, and fertilized and laying by the score, in hives partitioned off by queen-excluding division-boards, while the old queen was doing her full duty below, I am just as sure that this plan would work as if I had tried it and proved the same.

2. "By using the plan which I have outlined above, will it not prevent the original hive from swarming? If so, this will do away with some one to stay at home all the while to watch for swarms during the swarming season, besides proving a bonanza to those having out-apiaries which they wish to work for comb honey."

Well, as I said before, I do not think it would work as the questioner gives it: but by using the suggestion given, as I have explained, I see no reason why it should not stop swarming entirely. As soon as the young queen gets to laying, or before, if the old colony is very strong, take more combs of brood from it and fill their place with frames of foundation or frames of comb, putting the brood, thus taken out, over in the hive having the young queen. Sections should now be placed over the part of the new hive where the brood and combs are, so that, in no case, the bees lack for room to store all the honey there is coming in; and I would have these sections, in every case, filled with foundation, so that the bees would have no excuse for any desire to swarm, by being loth to build comb. Occasionally, or as often as the out-apiary is visited, move more frames of brood over to the new hive, putting frames of foundation in the place of the frames taken each time till the new hive is full, always putting on sections as the bees seem to require. If I am correct in thinking that the above will do away with swarming, we shall have something of great advantage, at least to all those working out-apiaries.

3. "Will a colony thus managed make as much honey as they would had they been kept in the old hive, and by some means not allowed to swarm?"

If we had that "*some means*" which would allow the bees to work with a will all summer long, with no desire to swarm, then I should say that they would produce more honey in the original hive, and with only one queen; but inasmuch as bees are, as a rule, determined to swarm, where worked for comb honey, it looks to me as if the above would give more honey than could be obtained either by letting them swarm, or so throwing them out of their normal condition by manipulation that swarming can be prevented. All cutting of queen-cells, caging of queens, etc., to prevent swarming, seems to put the colony in an abnormal condition, so that the work which they do while so placed seems to be done with a protest; hence it often happens that the season is mostly consumed by the bees sulking the time away, instead of their work-

ing with a will; the result of which is a small crop of honey, of a poor quality.

If the above is of any benefit to any, they can thank Mr. H. Sawyer, of Burlington, Iowa, for the original thoughts in the matter, for it was he who asked the questions.

G. M. DOOLITTLE.

Borodino, N. Y., Feb. 2.

THE BRANTFORD INTERNATIONAL CONVENTION.

A FORMAL INTRODUCTION TO ITS MEMBERS.

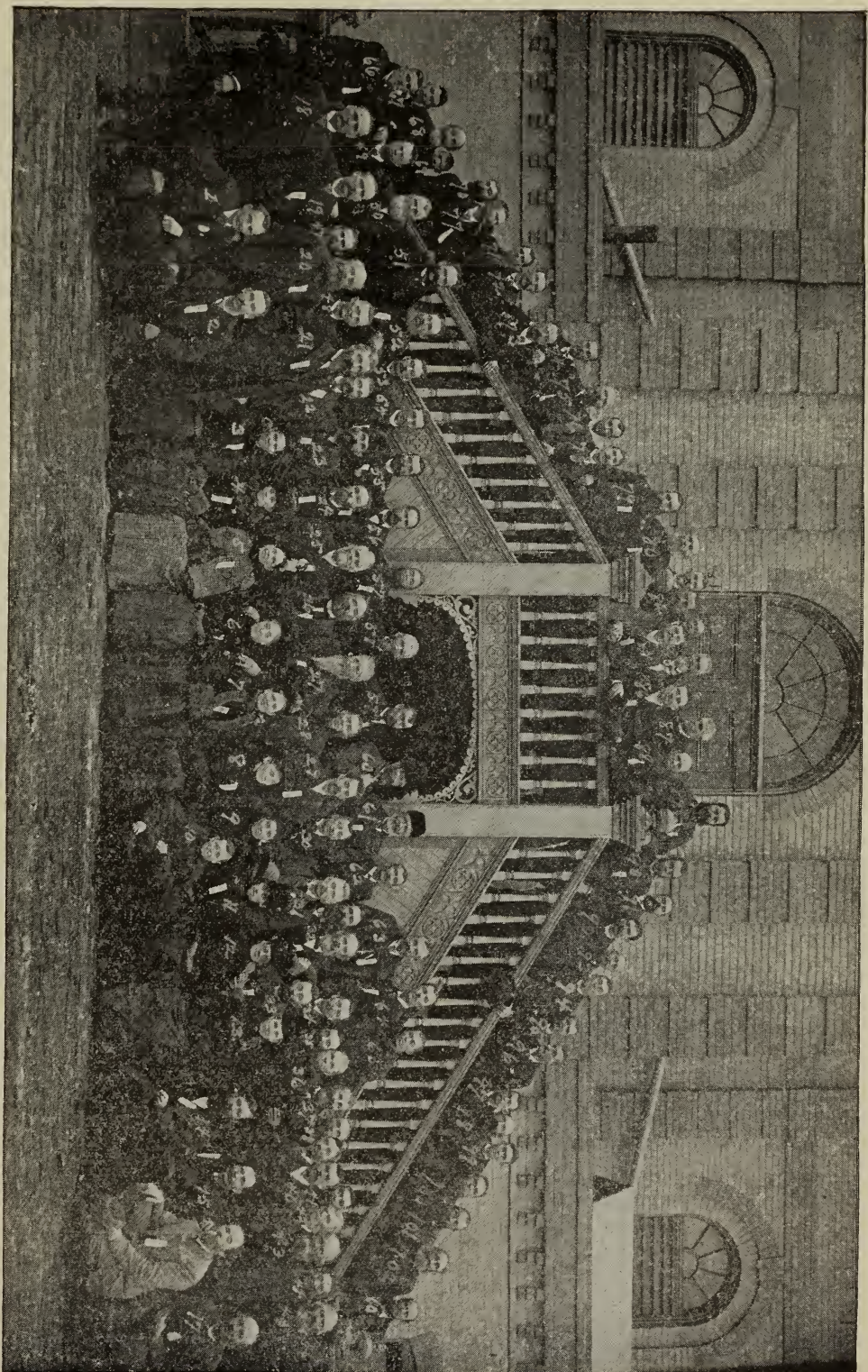
You will remember, in my report of the International Convention, at Brantford, I said that I would introduce the members of the association to the readers of GLEANINGS. In accordance with that promise, with my very lowest bow, hat in hand, I present to you one by one the members of the International Bee-keepers' Association. I leave it to you to say if they are not an interesting lot of people. A goodly number of intelligent faces are among the lot—yes, lawyers, doctors, ministers, editors, statesmen, presidents of bee-associations, and others of no mean calling, grace the lot.

Had it not been for that "big wall," I should probably have taken some views of the bee-keepers with my camera (which, you will remember, was in safe keeping in the custom-house office;) but I don't know that I am so very sorry, after all, because the city photographer has given us a very much better picture than I could have taken.

About the middle of one of the sessions we adjourned, in pursuance of the call of the artist, across the street, and stationed ourselves in front of the City Hall, in pretty much the attitude shown on the opposite page. One of the most difficult things in photography is to arrange a large group; but our artist succeeded admirably, we will all agree. The day was cloudy, and the light was soft and subdued. It is almost impossible to get a good outdoor group photo in the sunlight by the modern quick-working dry plates.

The picture opposite is a very much reduced reproduction of the original photograph; but it shows sufficiently well the individuality of each of the bee-keepers. This engraving, like all others of its class, must not be held closer to the eyes than 15 inches.

As I look over many of the faces, pleasant memories are recalled, and the names that I could not remember are all brought back to me now. I can not refrain from pointing out in print a few of the faces. Well, there is Secretary R. F. Holtermann, No. 1. To him belongs very largely the credit of the success of the convention, both in numbers and in enthusiasm. It was he who had previously made arrangements with the photographer for this beautiful picture. Just back of him is our genial friend J. B. Hall, No. 20, of thick-top-bar fame. And there is R. L. Taylor, the lawyer and statesman, No. 21. I wonder what he is looking away up in the air for. Is he lining a bee? Geo. H. Ashby, No. 22, is considerable of a bee-keeper, and quite a fun-maker at conventions. No. 23 is our friend Martin



THE BRANTFORD INTERNATIONAL BEE-KEEPERS' CONVENTION.

Emigh, a name quite familiar to Canadian bee-keepers. I had the pleasure of meeting him, I think, at the congress of bee-keepers in New Orleans. Mr. G. Sturgeon, No. 25, is the man who likes the A. I. Root chaff hive, and does not want anything better for wintering. And there is our old friend W. F. Clarke, No. 26, formerly editor of the *American Bee-Journal*, and now president of the Ontario Bee-keepers' Association. He has been long in the field, and is one of the veteran bee-keepers and writers. Yes, and there is the president of the American Bee-keepers' Association, Dr. A. B. Mason, No. 27, as sober as a deacon, but ready for a joke, I guess. It was with great pleasure that I renewed the acquaintance of F. H. Macpherson (No. 29), who is now practically editor-in-chief of the *Canadian Bee Journal*, and manager of the supply department of the D. A. Jones Co. F. A. Gemmel, No. 30, is a bright Canadian bee-keeper. It is he who, I believe, gave me such a friendly grip of the hand, and inquired after those Vandusen metal corners. No. 24 is C. P. Dadant, the secretary-elect of the International Bee-keepers' Association. If there are any ones who know how to produce extracted honey, or make the finest foundation, they are our friends the Dadants. Mr. J. T. Calvert, No. 31, is business manager here at the Home of the Honey-bees. Prof. Cook, No. 14, looks as if he might be in a heated debate. His eyes and features have an intenseness not seen when he is more at repose. Like your humble servant, No. 33, he is evidently sitting in an uncomfortable position. No. 17 is Mr. Wm. Couse, who has very kindly furnished me the names of some of these faces. He is secretary of the Ontario Bee-keepers' Association. No. 61 shows the genial quiet face of our friend S. Corneil, who will be remembered by our readers by his scholarly articles which have appeared occasionally in our columns. No. 51 is R. McKnight, one of the prominent Canadian bee-keepers, and one who, like our friend Dr. Mason, has a particular talent for getting up fine honey-exhibits.

Dear me! There are so many faces that I should like to speak of in particular that I must stop at once. All I can do now is to give you the list of bee-keepers as they were furnished me.

- | | |
|---------------------------|-----------------------|
| 1. R. F. Holtermann. | 44. Wm. Hill. |
| 2. C. McNally. | 46. Mr. Schantz. |
| 3. Mrs. C. P. Dadant. | 48. G. W. Barber. |
| 4. Mrs. Martin Emigh. | 49. A. E. Hoskel. |
| 5. Mrs. G. Sturgeon. | 51. R. McKnight. |
| 6. Mrs. Dr. Mason. | 52. J. B. Aches. |
| 7. Mrs. John Yoder. | 53. L. J. Mullock. |
| 8. Mrs. F. H. Macpherson. | 54. Wm. Hislop. |
| 9. Mrs. F. A. Gemmel. | 55. D. Anguish. |
| 10. Master Gemmel. | 56. O. L. Herschiser. |
| 11. Mrs. J. T. Calvert. | 60. Dr. A. E. Harvey. |
| 12. Mrs. E. R. Root. | 61. S. Corneil. |
| 14. Prof. A. J. Cook. | 62. Mr. Birkholder. |
| 16. R. L. Meade. | 63. N. Smith. |
| 17. Wm. Couse. | 64. M. B. Holmes. |
| 18. A. McInnis. | 67. Charley Culver. |
| 19. Jas. Armstrong. | 68. T. Birkett. |
| 20. J. B. Hall. | 69. Master Birkett. |
| 21. R. L. Taylor. | 70. J. R. Howell. |
| 22. G. H. Ashby. | 72. J. A. Foster. |
| 23. Martin Emigh. | 74. G. Howard. |
| 24. C. P. Dadant. | 75. C. Brown. |
| 25. G. Sturgeon. | 78. John Newton. |
| 26. W. F. Clarke. | 79. Jacob Alpaugh. |
| 27. Dr. A. B. Mason. | 80. A. Pickett. |

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|-----------------------|--------------------|
| 28. John Yoder. | 85. G. H. Morris. |
| 29. F. H. Macpherson. | 86. Arthur Laing. |
| 30. F. A. Gemmel. | 87. Ira Burrows. |
| 31. J. T. Calvert. | 88. C. Flanders. |
| 32. T. Ruddle. | 89. J. R. Bellamy. |
| 33. E. R. Root. | 90. R. H. Myers. |
| 35. C. W. Culver. | 91. J. Myers. |
| 38. Wm. Goodyer. | 94. Mr. Hamilton. |
| 41. Mr. Schantz. | 98. E. Schultz. |
| 42. Elias Mott. | |

It is to be regretted that there were not more ladies present. President Mason said he took his wife along to keep him straight. I do not know whether bee-men are disposed to depart very much from the rectilinear, in the absence of their wives or not; but I do know that the more ladies there are present, the better the convention. Get the ladies to attend, and the men will be sure to be on hand.

ERNEST.

AN INDUSTRIAL SCHOOL CHINA.

A LETTER FROM ONE OF OUR MEDINA BOYS.

THE following letter comes to hand from a young friend who was once a pupil in my Sunday-school class, and he afterward worked at different times in our establishment. Remembering our ways and methods of setting boys and girls at work here, he has formed a project of starting something similar, with the view of securing education and skill in the mechanical arts at one and the same time. The latter is also expected to assist in defraying the expenses of the pupils while getting an education. With this preface we will let "Harry" tell his own story to the readers of GLEANINGS:

Dear Mr. Root:—Some time ago I wrote you in regard to an industrial school, and I have since often wondered if you would feel that you could introduce the subject through the columns of GLEANINGS, to its many readers. Why do I choose GLEANINGS? Well, it is because it is one of the few publications which particularly attract my attention, from the decided Christian influence its main articles have; and feeling pretty sure of a hearty approval in the effort for such a school on the part of yourself.

Our mission-school system is carried out in this way: At a center we have a high school and a theological school. Scholars are drawn from day-schools at the other stations of the mission, for these. We experience great difficulty in holding in our day-school those boys who have proved bright and attractive, as their parents can not afford to keep them in school after they reach an age at which they can be apprenticed out to a trade. Now, our thought is, to establish an industrial department in connection with our day school, in which these boys can spend half of their time learning a trade as well as obtaining an education, and, in a measure, partially supporting themselves. We can thus hold and instruct them until they are old enough to show their qualifications for further advancement, selecting such as will be suitable for teachers, and giving them the benefit of the high school and seminary, by the aid of scholarships, which many Sabbath-schools are yearly providing for the support of one or more young men; and we are this year ordaining our first of the graduates as native pastors, for the native churches are calling for native pastors.

This is, in rough, the plan we have in mind. We need, first, money for buildings. I think \$500 would put up temporary buildings; but as we shall not have rent land, we should like \$1000 for substantial buildings. Friends have loaned or given some carpenter tools, and we have an upright drill and small turning-lathe. What we are desirous of is a few wood-working machines, a blacksmith's and tinner's outfit. These three are all we shall go into at present. If we can raise \$1000 for buildings we can add a printing-outfit, which will be at our disposal, without doubt, as our mission has a large plant of this description which will be split if we can find accommodation for a portion of it.

Now, then, dear friends, can and will you come to our assistance in this scheme, with which we are sure your heart is fully in accord, and thus help on the work of education in which we see a direct way of reaching many children? In the end many people will receive the word of truth and life, which none of the foreign missionaries can ever hope to carry to the masses with any thing like the success the Christian natives will thus be able to do. On behalf of the mission, and Tientsin station in particular, I beg to remain Yours very truly,
Tientsin, China. H. J. BOSTWICK.

I may add, that our own Sunday-school subscribed \$22.18; and as I had agreed to match whatever they raised, this made \$44.36. Twenty dollars more were subscribed, making \$64.36, which we take pleasure in forwarding to friend Harry this 10th day of February, 1890.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE VANDEUSEN METAL-CORNERED FRAME THE THING DESIRED.

I see that you will soon have the Vandeußen metal-corner reversible frames, to space $1\frac{1}{2}$ inches, ready. This is what I want. This last season I used your Simplicity hives under different managements. I used part with the 10 frames. This gives a spacing of $1\frac{1}{16}$ inches, which is $\frac{1}{16}$ more than $1\frac{1}{2}$ —too much. I used others with 11 frames. This gives a spacing of $1\frac{1}{8}$ inches— $\frac{1}{8}$ less than $1\frac{1}{2}$ —too little—but gave me better combs and better results every way than the 10 frames, while I used still others with eight frames to the hive, spaced $1\frac{1}{8}$ inches, which gave me by far the best results of any. Thus I am led to the conclusion that an eight-frame hive, spaced $1\frac{1}{2}$ inches, is about right. I am thoroughly convinced that a reversible frame is best.

Concord Church, W. Va., Jan. 1. T. K. MASSIE.

Friend M., when you get down to fortieths of an inch, you are getting it pretty fine; but we are very glad indeed to have the result of your repeated experiments. No doubt you are about right.

PERFORATED ZINC HONEY-BOARD IN SWARMING; A GOOD SUGGESTION.

As swarming time will begin in the South in a few weeks, I thought to say to those who practice natural swarming, that the perforated zinc honey-board is the one thing needful. When two or more swarms cluster together, just take a hive with solid bottom, no entrance; lay the honey-board on top; shake the cluster on it. The bees will run down into the box, leaving queen and drones on top. The

queen, in trying to get through the perforations; will limp her back, thus raising the wings from her abdomen as if on purpose to be grasped and caged. Perhaps you may say the bees will not thus run in and leave their queens; but practically they do it every time. You see, I have hived something like a hundred swarms that way, without a single failure. When your queens are all caged you can divide the cluster into as many swarms as you wish; letting a queen run in with each swarm in hiving. If the cluster is too large for one box, use two or more boxes in catching the queens.

If not ready to give your bees at once, lay a queen on top of the box or boxes, wire cloth down, until ready to hive; or, better, drop her, cage and all, among the cluster. If the queens are taken entirely away, the bees will remain in the box from 15 minutes to two hours or more. If they have clustered, and failed to find their queen, and have gone back, they will break the cluster quicker at each successive swarming, until, after issuing two or three times, they will not cluster at all without a queen; but after a vain search they will return to the parent hive.

E. S. ARWINE.

Los Berros, Cal., Jan. 18.

I feel quite sure that you can get the queens in just the manner you mention, and the suggestion is doubtless quite valuable.

HOW TO MARKET CHUNK HONEY.

There are various ways of disposing of chunk honey, and we have found the following to be a very good one. When we can not conveniently get the tin pans, such as Mr. Root used to sell for that purpose, we buy the two-pound wooden butter-plates, such as grocerymen retail butter in, for which we pay 23 cents per 100. In these we lay a sheet of thin writing-paper. Bring the honey into a warm room some time before cutting, and cut it up with a sharp and very warm knife into different-sized pieces, then weigh and mark the price on each one. This honey looks well, and retails readily at the groceries at the price of honey in sections, and will pay the bill there while it lasts. In this way we dispose of all the nice new drone comb built in extracting-frames. We don't like to use drone combs for extracting from, because bees will not fill them as readily as worker comb.

Barry, Ill., Jan. 17.

MRS. M. A. SHEPHERD.

Thanks, Mrs. S. We have sold chunk honey in the way you describe. A short time ago we received a consignment of 2000 pounds of comb honey. The shipper was so careless as to put the sections in cross-wise of the car. As the honey came by freight, every time that car was bunted on to by the engine or other cars, it knocked some combs out of the sections. If these sections had been placed lengthwise of the car, the concussions would have had little or no effect, as will be readily seen. Well, when the honey reached us, almost every case was daubed and leaking; and while some cases had no sections broken, the majority had several. In some instances the cakes of honey were lying on their sides. What sections were not broken were literally besmeared. We brought the honey into our wax-room, had the girls wipe off each whole section with a moist rag, wash out the cases, and return what sections were unbroken. The broken combs, we put into wood-

en butter-dishes. When we came to weigh it all up we found we had something over 600 lbs. to market. We sent some of it up town to the stores, and told them to sell it for 2 cents less per lb. They were retailing comb honey at 18 cents, consequently they sold the broken combs in the butter-dishes for 16. Calling around a few days afterward we found that it was all gone, and some of the grocerymen sent down for more. The result is, that it is now nearly all sold. People have a great liking for chunk honey. They say it is like the honey of their fathers. They imagine that it tastes better. Now, it would not be at all surprising if sections partly filled, cut out and put into butter-bowls, would sell better than if put on the market left in the sections. We should be glad to have our readers try the experiment, and report how it works. E. R.

SAVING SOULS AS WELL AS MAKING MONEY.

How often have I thanked God that I started in the bee-business! for by so doing I have learned that it is not only to make money, but to win souls for Christ, which is far better. How I wish that all employers would set apart ten minutes of ten hours to the worship of God, and have over their doors that grand motto, "In God we trust"! This morning as I sat in prayer-meeting and class-meeting, my mind was carried back two years when our little church in the grove was rejoicing because the Lord was answering our prayers by bringing in the young of our Sunday-school to his blessed fold. Eleven young workers were added to the church. How my heart rejoiced to see *nine* of that number in class this morning, and hear the testimony of these young Christians! My mind is also carried back to the time when a father steps off the cars and is met by his son, who says, "Father, if you could have only one wish granted, what would that be?" Almost staggered by such a question, the father's mind runs over many different things; but in a moment he responds, "Connie!" Yes, Connie, or Blue Eyes, *was converted*. Why, I read that number of GLEANINGS with tears of joy. I do not know why, unless it was because there is a "blue eyes" here in Paxinos as well as in Ohio, of almost the same age, who at the same time threw off the mantle of sin and put on the armor of the Lord; and may God grant that Blue Eyes, Brown Eyes, and *all others* may "love righteousness and hate iniquity." I am one of your A B C scholars only *four years old*, but *twenty-five* in length of life. GEO. W. COOK.

Paxinos, Pa., Jan. 19.

Amen, Bro. Cook; and may the Lord help us to remember that, after these loved ones have been started in the way of righteousness, they need to be looked after and prayed for, that they may be kept going, and that they may hate iniquity, until the time shall come for them to be called home with all the rest of those who love righteousness.

HAVING YOUR NAME PRINTED ON YOUR PAPER AND ENVELOPES.

Friend Root:—I wish I could say something that would induce every one who writes letters, to get their address printed on either paper or envelopes. We get a number of letters every year without signatures, or so poorly written that they can not be made out. One letter came containing \$14.00, and no signature; and another, requesting an estimate

on a lot of goods, also no name attached. The writers of these letters no doubt blamed every one but themselves. Every one makes mistakes; and knowing this we should take advantage of all reasonable means tending to lessen them. Getting three to five hundred sheets of paper at once, with address printed on, is much cheaper than the same amount with no printing, when purchased a few sheets at a time. Almost every village has a printing-office where they will be glad to give you prices so low as to astonish those who have not tried it. It is not necessary to have a large showy letter-head. Just have your address in small type, on the upper left-hand corner. Try it, and save money and vexatious mistakes. M. H. HUNT.

Bell Branch, Mich., Jan. 25.

We indorse every thing you say, friend Hunt. The man who can not afford to have his correct address printed somewhere, just as it ought to be, on his stationery, deserves to have trouble. In our office there is an unceasing amount of trouble, and many quarrels coming up, just because we can not, even by the aid of our experts, read the writing. Of course, you can not all well have type-writers with which to print your letters; but you surely can, even the juveniles, afford the few cents needed to have your full name and postoffice printed on your writing-materials. If your freight and express office are different from your post-office, just one line will tell us that; and, oh my! what an amount of trouble it will save on both sides, if we can always have these things absolutely settled by hunting up any letter we have had from you!

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all questions, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

What is the usual price charged for transferring bees from box hives? C. G. S.

Atoka, Tenn., Jan. 25.

[The usual price charged for transferring is \$1.00 for a single colony. If you can get a job of 10 or more, 50 cts. might be enough.]

OPEN-SIDE SECTIONS, OR NOT.

Do you use the open-all-around section? If you do not, could you produce as large or larger crops of honey by using sections open all around?

[This question was answered in the Question-box. Those who used the open-all-around sections liked them; and those who had not used them were prejudiced against them, as a rule. At the Michigan State Bee-Keepers' association last month, some very conclusive testimony was brought forward, showing that the open-side sections were better filled. Some very pretty samples were shown in proof of it.—E. R.]

A COMPARISON OF THE JAPANESE AND COMMON BUCKWHEAT, WITH THE DIFFERENCE GREATLY IN FAVOR OF THE JAPANESE.

I sent for one bushel of Japanese buckwheat, and sowed it the 27th day of June, and cut it Sept. 2d. I sowed 1½ bushels of common buckwheat the same day. The Japanese made 42 bushels, and the common only 18. If I had sown all Japanese I should have had 100 bushels in place of 60. The Japanese was two weeks earlier than the common.

Salamonia, Ind., Jan. 20.

□ D. K. KNOLL.

ALFALFA CAN NOT BE PLOWED UNDER.

Don't assure anybody that lucerne (alfalfa) can be plowed up as readily as clover. The roots are much harder, and will grow after being plowed under. They are carefully picked out of each furrow as it is plowed, and carted off. REV. D. PEEBLES.

Bountiful, Utah, Feb. 1.

BEES FIGHTING AMONG THEMSELVES, AND THE REMEDY.

I see in January 1 GLEANINGS (page 22), that D. D. Burrows speaks of his bees fighting among themselves. I have, at three different times, had a colony of bees become queenless when there were neither eggs nor larvae to raise a queen from, and they would fight till the ground was covered with dead and dying bees, when a frame containing eggs and brood put a stop to all the trouble, and they went to work all right. N. A. E. ELLIS.

Rail, Mo. Jan. 15.

WIDE TOP-BARS AND NO HONEY-BOARD.

I have never used a latted honey-board nor separators. I ship my honey to a city market, and it always brings the highest price. The top-bars of my frames are $\frac{3}{8}$ thick and one inch wide, spaced $\frac{1}{2}$ in. apart, with a bee-space above the frames. I use a chaff hive, and set the super on the brood-chamber, without any kind of honey-board between it and the frames. There are a few brace-combs built between the frames and super, but only a few. There has never been a section with brood in it. WILLIAM WITROW.

Paint Valley, O., Jan. 22.

[If your top-bars were a little thicker you would have no brace-combs.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 154.—a. *What size of brood-nest do you prefer? Is it material whether the brood-nest is cubical or not?* b. *Give your reasons briefly for adopting the brood-nest you are using.*

a. I use a 10-frame Simplicity-Langstroth. b. Because the majority, use it, and I am anxious to see a standard frame used by all.

Louisiana. E. C.

P. L. VIALLO.

Seven to eight of our frames in the spring; six afterward; not material. b. Experience. In the spring, give as many as the queen will fill; afterward, as many as she will keep full.

New York. C.

P. H. ELWOOD.

a. About 2000 cubic inches. For the purpose of a brood-nest alone, without any other consideration, I do not think the shape of the brood-nest is material. b. Because I think it is about the right size, and because it suits me.

Illinois.

MRS. L. HARRISON.

a. $12\frac{3}{4} \times 12\frac{3}{4}$ inches inside the frames; 8 frames to a hive. I think it is of less importance than some of us imagine. b. I could not do it. I presume it was a matter of accident with me at first, as it is with most bee-keepers.

Ohio. N. W.

H. R. BOARDMAN.

Eight Langstroth frames. Twelve Gallup. New Heddon. I think the latter best for comb honey. The others are good also for comb honey, which I believe pays best here.

Michigan. C.

A. J. COOK.

a. About 1600 cubic inches, or nearly a foot cube. b. Because bees can be managed so as to secure the largest cash profit from such a brood-nest, in my opinion.

New York. C.

G. M. DOOLITTLE.

a. Ten or more Langstroth frames. If I worked for comb honey I should prefer 8 or 10 such frames. b. The first reason is, because it was the one almost exclusively used in this locality when I came here, and I bought my first bees, on coming here, in such a hive. If I make any more they will be larger.

Ohio. N. W.

A. B. MASON.

a. Langstroth. I suspect cubical might be a little better for bees, but not for the bee-keeper. I adopted it because Vandervort, the foundation-mill man, when he left Marengo, sold out his hives to me, and it is so nearly the Langstroth size I have never changed, although I may yet.

Illinois. N.

C. C. MILLER.

a. An 8-frame Langstroth hive. Other things being equal, I should prefer a round or cubical brood-nest as being the best shape to economize the heat of the bees; but the advantages are only slight. b. I prefer the shallow frame, on account of greater ease of manipulation. It makes the hive more spread out, and less likely to be upset; there is less oscillation of the combs in moving the hives about.

California. S. W.

R. WILKIN.

a. One holding 12 Gallup frames. Probably bees would cluster to better advantage in a hive approaching the cubic form; but a slight variation from this form, such as the Gallup or L. hives, have given satisfactory results in wintering. b. My reason, first, for using the Gallup hive was, that I bought a lot of bees in them; and my reasons, last, are, that I have tried nothing that suits me as well.

Wisconsin. S. W.

S. I. FREEBORN.

Seven Simplicity frames. I think the shape which this gives is better than the same space in cubical form would be. A small and nearly globular nest in one end, in early spring, seems to be a little better located than it could be in a cubical hive; and expansion endwise is simpler than taking possession of new frames. Same of the winter nest. b. I grew into it in the course of work from year to year.

Ohio. N. W.

E. E. HASTY.

a. $16\frac{1}{4}$ long by $13\frac{1}{4}$ wide by 11 deep. I believe the nearer cubical the better. b. Because I prefer a short frame; and as 11 frames require the proper length of box to take on my clamps holding 1-lb. sections; and this brood-box seems to contain just about the proper amount of comb surface for the queen to fill with eggs and keep full by the time clover blooms here in this locality. Other localities might require larger or smaller brood-nests.

Vermont. N. W.

A. E. MANUM.

a. I prefer a large single-story hive, allowing the bees themselves to size the brood-nest. This applies, of course, to the production of extracted honey. It would be difficult to give brief reasons for my preference, and I do not think it necessary.

Such hives are not manufactured, and the tendency of the entire bee-world is toward other styles of hives; but this doesn't prevent my using such hives as have given me the best practical results.

Cuba.

O. O. POPPLETON.

I use the Quinby standing frame, which is 10x15 inches, inside measure. It is equally perfect, whether you use one frame for nuclei or 16 side by side, as necessity may require. For boxing, I use 6 and 7; for extracting, 52; and for wintering, 6 and 7 combs. If I were obliged to adopt a fixed size of brood-nest I would use eight of those frames. I prefer this frame because I can adapt the size of the brood-nest to the strength of colony, to the different seasons, and to all localities.

Connecticut. S. W.

L. C. ROOT.

If the propagation of bees and wintering only were my object, then I should prefer a cubical brood-nest, because their stores and cluster are more compact and comfortable, and the cluster can move gradually upward where it is warm, as their stores, surrounding them, become consumed. But as honey is my object, and as I know that bees can be wintered safely in a shallow frame, I prefer the Langstroth style of brood-chamber, because I know that I can produce a larger crop of honey, the larger the surface above the brood-chamber.

Ohio. S. W.

C. F. MUTH.

a. The brood-nest of my hives usually contains either 1276 or 2552 cubic inches in the shape of either one or two brood-chambers 11½x18½ inside, and 6 inches deep. It makes little or no difference to the bees whether the brood-nest is cubical or not; and it is much more advantageous to the bee-keeper to have it shallow. b. Because it gives a control over the management of the bees and the disposition of their stores which in other forms of hives is not possible, or can be gained only by numerous appliances and greatly increased manipulation.

Illinois. N. C.

J. A. GREEN.

a. We prefer the large Quinby suspended frame (see our answer to No. 151). Our hives can accommodate 11 of these frames. b. According to our experience, a comb longer horizontally is better than a square one, for the queen, in spring, is unable to lay her eggs in a regular disk. She wants to lay in circles; but, as the lower part of the disk covered with brood is cooler than its sides, the workers refuse to descend, and the disk is flattened at the bottom and enlarged at the sides, taking the form of a horizontal oval. Father Langstroth was, therefore, well prompted when he adopted the horizontal frame.

Illinois. N. W.

DADANT & SON.

We favor a large hive. Our Langstroth hives hold 8 frames. For comb honey we use just the 8 frames for a brood-nest; but for winter we give them two sets of eight combs—one set over the other, with nothing between the upper and lower set. For extracting we prefer to use the L. frames, three stories high, 24 frames in all. We raise but little comb honey, and that at home. As our comb-honey colonies are worked with one set of 8 combs, we take another set of eight combs full of honey from a third story of a colony that is run for extracted honey, and put it on the comb-honey colony to winter it. Then they both have two sets of

eight frames. But for extracting we prefer our tall frame, which is 21 by 13 inches, 21 high, 13 wide. In our shot-tower hives we use two sets of nine of those tall frames, one set above. The others get more honey per colony; winter better and swarm less.

Wisconsin. S. W.

E. FRANCE.

We prefer a brood-nest that can be contracted or expanded. It is not material for the brood-nest to be of a cubical shape. b. The shallow brood-chamber was adopted in our yard for the following reasons: They are easier to manipulate than any other style; bees can be driven from an entire case in a few minutes, and the case be carried to the extracting-room. The same can be returned without exposing combs to robbers, and bees are not excited to anger as by the old brush-and-bust-'em method. The shallow brood-nest is also just the thing for making artificial swarms. In fact, we can not here enumerate half the advantages.

New York. E.

RAMBLER.

If the brood-nest is to be kept one size all the year round—that is, where contraction is not practiced—the capacity of eight Langstroth frames is my preference, and I have used them in considerable quantities, varying from six to twenty-four. I do not think it a matter of much importance for wintering, what the shape of the brood-nest is. The theory that the queen will lay more eggs, and that the bees will winter better in a cubical or tall hive, is only a theory. It is not so at all. If any thing, it is just the reverse that is true. I have never had my bees winter so well in any hive as in very shallow, long, flat hives. Were I going to start an apiary now, and adhere to the suspended frame, not using my divisible brood-chamber, and not caring to have my hives and frames of any standard size, the same as others use, I would make an eight-frame hive taking a frame just 4½ inches longer than the standard Langstroth, and enough shallower to leave it the same capacity. Of course, bees keep a little warmer in a shallow hive, because they will be closer to the top of it, not having a great open space above them to heat, and heat does not pass away sideways or laterally as rapidly as it does upward. The bees move slowly in a lateral direction as they use up the stores. After all, it makes but little difference about safety in wintering, for bee-diarrhea is the sole cause of our winter losses, and the depth of the frame or hive does not cause bee-diarrhea. Still, the flat hive is the best. They are ever so much the best in which to store surplus honey, either comb or extracted, and such frames manipulate more easily. My reasons for adopting the new brood-nest I am now using with the small shallow frames, is, that I use two sets of frames to one brood-chamber; and with a horizontally divisible brood-chamber I get the advantages of both deep and shallow hives. By interchanging the brood-sections, I get more surplus comb honey. I can keep the brood up to the surplus-honey receptacles all the time, and I do it with emotion, so to speak. It is one of the correct theories that is quick, safe, and easy to practice. That is the beauty of it. There are many correct theories which are practically false or worthless, you know. There are a dozen other reasons for preferring this divisible brood-chamber, but I must not take up any more room in this department.

Michigan. S. W.

JAMES HEDDON.

OUR HOMES.

Come unto me, all ye that are weary and heavy laden, and I will give you rest.—MATT. 11:28.

PERHAPS no other verse in the Bible has been more upon people's tongues, and often-er quoted, than this simple little verse. In fact, I think I have used it for my text before in these Home Papers. What I wish to consider now, however, is just this: Is the promise true? Perhaps many of my good friends who love Christ Jesus may almost feel hurt to think I should ask such a question. Well, I have asked, just because I am inclined to think there has been, or is, a good deal of skepticism in regard to it. You will notice, that the conclusion promises *rest*; and when *Jesus* promises rest, he means it, I assure you, in the fullest sense of the word. Why, then, do we go through life so *weary*, and bearing burdens so *heavy*? I think it is because we refuse to accept the plain, simple invitation. A good many say that we shall have *comparative* rest; that we need not expect to be free from the cares and responsibilities of life—at least, not in *this* world. Very likely this is true. But, my friend, suppose you have broken off from some sinful habit. Suppose, if you choose, you are a slave to tobacco. You feel that it is wrong, and you stop using it. You stop from a sense of duty, proposing to fight it out. Is there anything in the Bible that encourages you to believe that you have a right to expect that you can be *delivered* from the dreadful hankering and longing for the accustomed stimulant? Why do I ask such a question? Because of the differences of opinion. Even our good friend who wrote the Tobacco Manual—one who has been for years a faithful servant of Christ Jesus, is at least not quite settled in regard to the matter. And now I want to allow him to speak on this subject:

ARE WE TO EXPECT THAT GOD WILL, IN ANSWER TO PRAYER, DELIVER US AT ONCE FROM SIN-FUL HABITS?

Bro. Root:—I want just a word with our good friend at Woodburn, Ill., Mr. Muhleman, on a single phase of the tobacco question. Brother Muhleman seems to carry the idea that any person can control the desire for tobacco, whether acquired or inherited, or both, by asking help of God. I do not wish to enter into any controversy on the subject. It would be like entering again upon a controversy concerning the nature of "original sin." I simply want to say that I have thought over that phase of the subject for more than fifty years, with single and individual instances before my mind—in all not exceeding, perhaps, a dozen or twenty. And then, on the other hand, I have met and talked with thousands who give the best of evidences of being Christians, who tell me that the desire clings to them, and they have to fight it every day and hour. Some tell me that the desire for tobacco, even though they have not used it for years, on seeing or smelling it, comes on them with almost irresistible power—the Bible would express it, "Like an armed man."

In considering this subject, I take into the account the will power of man, its influence on habits, passions, and tastes. I also take into the ac-

count the tendency of liquor, tobacco, and opium to destroy the will power—tobacco more than liquor, and opium more than either. Arranging these testimonies against each other, at least a hundred against one, I dare not take the testimony of the one, and reject the testimony of the hundred. Hence, in my manual on tobacco, also in my lectures and newspaper articles, I do not refer to what is often called the "Murphy doctrine," though I do not deny it, nor even ignore it. I wish I could see many more instances of it. Perhaps in the generations following, more will be witnessed. I have three sons in the ministry. If they reach the age I have attained, some of them may bear testimony on this subject, such as I have not been privileged to witness.

N. A. HUNT.

Dear brother, you do not know how earnestly I have pondered over this very matter which you bring up before us. I have been compelled to admit, that, while God did in some instances seem to give instant and perfect emancipation from sin in a special direction, at other times I have known good earnest faithful followers who seemed to be called upon to bear the consequences of their past sins in just the way you have mentioned. Paul besought the Savior to remove the thorn; but in answer he was given grace to bear it. When I gave you that talk about loving *righteousness* and hating *iniquity*, I had this thought in mind; and my conclusion then was, that the reason why deliverance does not *oftener* come is because we still cherish a lingering love for clinging to the evil, and so the memory continually haunts us. We are like Lot's wife—prone to look back, and go over, in memory, the forbidden sin. Since then, however, I have had a new experience of my own that I wish to tell you about to-day.

At different periods of my life I have had experience in being lifted *at once* from the miry clay to the solid rock of Christ Jesus; and I am sorry to say that I have *also* had *experience* long afterward, that convinced me that we must not be *too* sure that we are thoroughly emancipated. When I wrote that little paper in regard to the machinery of the universe, more than once the thought came into my mind of the special line of machinery manipulated by the *prince of darkness*, with the express design and plan of leading souls to ruin. There is something fascinating in gazing into the crater of a volcano; and this love of looking down, or, if you choose, going down, into the very jaws of death (and a horrible death too), has prompted men to let themselves down by ropes, in order to study the boiling and seething caldron of melted lava. The disposition is very strong in my own heart to want to see and know, not only all about the workings of the slumbering fires of the interior of our own earth, but there is something *terribly* fascinating to me along some lines of the machinery of Satan, even when good sense bids me turn my back and hasten away. Something in my nature makes me inquisitive to know more about these dreadful dangers, even when I know that to *look* is sin, and to dally may be fatal.

Some time ago a little speck of cloud began to dim my spiritual enjoyment. I do

not know that I can call it even a speck of cloud. Some days I thought there was not any cloud at all; and at other times I felt sure there was one clearly visible. Even if I did not see it I felt that my faith was surely being *dimmed* just a little. I did not enjoy prayer all alone by myself as I usually do. In a few days more it would be gone, and I smiled to think I had imagined that I was slipping back. But pretty soon I felt more sure than ever that this cloud was an indication of danger. Perhaps some may say, "Why, Bro. Root, that sounds a little bit ridiculous from our spiritual teacher. How could it happen that *you*, who have so frequently and vehemently proclaimed Christ Jesus as the Savior of the world, should so far forget to *practice* your own *preaching* as to omit to take this matter to the feet of Jesus?" And this obliges me to make *another* confession, still *more* humiliating. When the cloud was new and strange, it oftentimes showed a sort of silver lining, and it changed about in unexpected ways so that I rather *disliked* to have it taken away. Another thing, when I prayed about it, it did not seem to make very much difference. A young friend who was rescued from intemperance and intemperate habits went and got drunk one night after he had been to prayer-meeting. Yes, and in that very prayer-meeting he prayed that God would keep him from his besetting sin. When I found him in jail he told me that, although he had asked God to help him, he *didn't* help him a *bit*! Almost every one smiles on hearing this sad story. Why do they smile? Well, I suppose that every one, almost, says in his heart, if not aloud, "He did not pray *honestly*. It was the prayer of a hypocrite. If he really *meant* it, why did he go from the prayer-meeting to a place where he could get intoxicating liquors, or where he would find companions who would furnish it?"

Now, in view of the above, was it not useless for me to pray when I was quite certain that I should sin again, when temptation came? Poor Albert said that he had tried praying for God to help him. God alone knows the heart, and he alone knows whether Albert was really hungering and thirsting after righteousness when he uttered that prayer, or whether the hungering and thirsting was in the main for the forbidden stimulant.

Is it true, that, while we are conscious of this iniquity in our hearts, we had better stop praying? *Not so*, my friend. By no *manner* of means stop praying or stop taking part in any religious services. Your old friend Uncle Amos has had some experience in this line, and it was in the hope that it might be helpful to you that he is penning these lines to you to-day. My dear friend, if a little speck of cloud (sin produces clouds of many hues and kinds) has darkened *your* spiritual sight as it did mine, do not, by any manner of means, stay from prayer-meeting, or think of neglecting daily worship. If you can not pray, with your heart and soul in it, as you have sometimes done, pray with all the faith you can scrape up. Do not, under *any* circumstances, let Satan per-

suaude you that it is *inconsistent* to take the name of Christ Jesus on your lips. Most of you know what a great work the Young People's Society of Christian Endeavor has done and is doing, over almost the face of the whole earth. Most of you also know of the "iron-clad pledge" that is a special feature of this society. This pledge is, to be on *hand* and take *part* in some *way or other* (besides singing), at every regular meeting, unless absolutely prevented. There has been a good deal of fault found with this iron-clad pledge. A good many have become offended, and have withdrawn; but those who take the pledge, and keep it, *grow* and *shine*. The very fact that they have given a sacred promise to stand up for the Master, week by week, proves to be a great wall of safety about them. The thought of this iron-clad pledge keeps them from doing a hundred things they might do otherwise, just as the thought that *you* and *I*, my friend, by bowing our heads before the great God of the universe, and asking a blessing at the table, keeps us from doing many things that we might otherwise do. Well, I think that perhaps I had better confess to you that this little speck of cloud that I mentioned did make me feel once or twice as if I should like to be excused, at least for the time being, from family worship. I felt that, if I took up the service, it must be without very much heart in it. Why not go off by myself, and pray over my cold and fallen state? Well, I did not want to do that. I had not become so very bad or so very cold either; for when the thought came into my mind of omitting family worship just once, it frightened me. I do not know how it may be with the rest of humanity; but when A. I. Root voluntarily neglects or skips by his daily petitions to God the Father, he is lost. The bare thought of it makes me shudder. It frightens me. All the wealth the earth can give or furnish—all the attraction that this world has to offer, could not tempt me for one moment to think of living a life without prayer. I have *tried* a life without prayer and without obligation to God. Nearly twenty years of the best part of my life were passed in that state. I never want to go back to it again. Bad as I am and have been, cold and unfeeling as I yet am at times, I never want to live without the daily and hourly glimpse of the approving smiles of my Savior. I *did* pray, or at least I prayed feebly, about this thorn in the flesh, but it did not make very much difference. I began to fear that my spiritual enjoyment was getting to be somewhat of an old story. I presume it was Satan that began to suggest that this new freak of mine had lasted quite a good many years, and that it was nothing particularly strange if I did begin to crave something new. The time was coming for another Home Paper. I have never written a Home Paper yet without a heart in it. Before the time comes, God gives me a message to carry to those who love his holy name and his holy word. A good many times I find, when it comes time to write those Home Papers, there are several things to be fixed up or disposed of. David said, you know, "Cre-

ate in me a clean heart, O Lord, and renew a right spirit within me; then" (after that, mind you) "will I teach transgressors thy way, and sinners shall be converted unto thee." He had learned, as I have, that no spiritual message can be carried to others until his own heart was made clean, and renewed. A good many things began to assail me. When I went into our afternoon prayer-meeting only day before yesterday, a good brother was speaking. His concluding sentence was something like this: He spoke of his comrades of earlier days. Some of them had gone to ruin, and some filled drunkards' graves. Why? Just because they thought they were strong enough to dally with sin. They thought they would go just a little way, just for the fun of it. They did not propose anything out of the way. They would get just a *glimpse* of these things that were talked so much about; but the end was death.

I thought of that little speck of cloud, and it made me shiver. The wind blew a bit of paper across my path. On that paper something was said about the grand characters and shining lights that all of a sudden had tumbled and fallen. Men who were considered as strong pillars of integrity and purity, all at once shocked the community, and may be the whole nation, by something appalling. The writer said, however, that no great man had ever fallen *suddenly*. No such thing ever happens. The character that the world looked on as great, and beyond reproach, was all the time worm-eaten. The little worm had commenced years ago, gnawing at his vitals. Perhaps he stood before the world fair to look upon for some time after he was only a hollow shell. After his fall, all the world could see that such was the case. Corruption and depravity begin slowly. It is at first only a little speck; but it gets larger and larger. Then my imagination pictured the effect on humanity, and the shock it would give those who had been reading his Home Papers, and perhaps the dishonor that it would throw on the name of Christ Jesus, if *A. I. Root* should, in his old age, say, get cold or indifferent, if nothing worse. "Lord, help thy poor stumbling unworthy servant!" welled up from my lips. But still the cloud hung over my spiritual horizon. It was getting to be a part of me. It was with me when I closed my eyes in sleep, and it was plainly in sight when I awoke in the morning. Sometimes Satan tempted me by saying it was like Paul's thorn in the flesh, and that doubtless God intended it to stay there. But I knew better. We have it in the words of Holy Writ: "Let no man say, when he is tempted, I am tempted of God." Why did I not go to some good spiritual friend of mine and ask him to pray for me? I was ashamed to do so; for, from some strange inconsistency, if I had told the truth I should have been obliged to say that I was not sure that I *wanted* to be any different. Another thing troubled me: Whenever I looked at the whole matter as though it were one of my "neighbors," I began to boil with indignation, not at *myself*, but at my neighbor. The thing that I would not have tolerated

for a moment in a neighbor of mine was not any thing particular out of the way when it came to have a lodging-place in my own heart. And this thought troubled me a good many days. "Thou shalt love thy neighbor as thyself." Sometimes in my own life I have prided myself on the fact that I came pretty near doing this. But just *now* the thought was—why, to tell the plain truth, a ridiculous absurdity. I could sit down very complacently so long as the cloud belonged to *me*; but if it hung over somebody else—oh, yes! *that* made all the difference in the world.

A young friend, whom I was once exhorting to come to Christ, said to me something like this: "What shall a person do if he does not *want* to be any different?"

I thought at the time that the expression exhibited a very depraved spirit; but here was I near that very predicament. I had been praying for many days that God would help me to realize and comprehend the sinfulness of sin. I have seen it stated somewhere, that every sin is hideous in the sight of God. I thought if God would help me to see how hideous was this sin, in his sight, I should be freed from its continuance. At the time of my conversion I did get a brief glimpse of the sinfulness of sin. I got, for the time being, a little insight into the way that God looks at sin, so that I could realize just a little how impossible it is for him to tolerate it. And just the contemplation of it for a little time caused me to bow my head in such shame that the tears wet the very ground where I sat. And after that, came deliverance. At present, however, although I seemed to be getting a better view than ever before of the way in which Satan makes inroads upon the human heart, and of the subtle way in which he leads people out of the straight and narrow path, it did not seem to make much difference. I feared that I was getting to be a *hardened* sinner. What shall be done with one who is weary and heavy laden, and yet is so stubborn and contrary—so inconsistent—that he does not *want* rest? Some of you who have never had a hand-to-hand conflict with Satan may think this ridiculous. But I am impressed, that many among my readers know something about just such hard struggles as I have been telling you of. Why do I tell it? Because I want to tell you as I sit here and dictate these words that I have found deliverance. It was on my mind last night when I went to bed; and it was on my mind and conscience when I opened my eyes this morning.

Not very long ago our seven-year-old boy Huber got up in the morning out of sorts. He complained; and because his mamma did not let him have his own way he refused to eat his breakfast. His papa finally looked toward him. I knew he was having one of the same battles that I had fought, oh so many times!

"Why! is our boy a bad boy this morning?"

I looked him full in the face, and waited for his answer. Notwithstanding his fits of temper he is remarkably truthful. He looked up at me; but as there was no other hon-

est course he nodded his head in assent that he *was* a bad boy.

"But you want to be a good boy, don't you?"

The spell seemed to be a pretty bad one this time, and I wondered a little how he would answer. He considered the matter for awhile, but his face did not soften a particle. After some deliberation he shook his head slightly, but yet very perceptibly, indicating that he did not even *want* to be good. His mother replied that he would be good if we would just give him a little time; and, sure enough, after sufficient deliberation he picked up his knife and fork and looked up with a smile, as much as to say, "Now, papa, I want to be good, and I am good."

Well, my case had this difference. It really seemed as if weeks and months were not going to be sufficient time for me to go back and express my readiness to obey—that is, in one particular direction. I had decided a dozen times to tell my wife, and ask her to pray for me—yes, just as I used to do years ago, when I was taking the first faltering steps from darkness into light. The only difficulty in the way was, that she has *now* too much faith in her husband to believe that any danger threatened. I did, however, muster up courage enough to say something like this:

"Your husband is being hard pressed by Satan."

She looked at me a little bit wonderingly, and then replied:

"What, this morning?"

"No, not this morning particularly, but for quite a time past."

She left the room, but did not say any thing more, and did not ask for any particulars. I was rather glad she didn't. I expected she would pray for me. I went out on the sidewalk; and as I breathed the fresh air, something prompted me to speak aloud (it was before daylight had even tinged the east); and as no one in our neighborhood except myself gets up at this time of day, I knew I could tell my Savior aloud what I wished to say, without any danger of being heard. The prayer I breathed, as nearly as I can remember, was this:

"O Lord, help thy servant in his helplessness."

I can not now remember exactly the words I used to express the next thought. I know this, however: The request was in a shape I never put it before. It was more humble. My feeling was, that, so far as any thing I could do was concerned, it amounted to nothing, so was not worth mentioning. And it included, also, the thought that all the Christian character that had been built up in years past, and on which I prided myself so much, was of no account; salvation could not come through A. I. Root at all, and that there was no use in depending upon him any longer. He himself was clay or dust of the earth. At times I may have felt a little proud of my past record. Perhaps I *was* inclined to fall back upon it sometimes. This disposition was all gone. In its place was a feeling that Christ Jesus, and he alone, without help on

my part, was to dispel the cloud. Like David, I asked him to create in me a clean heart, and renew a right spirit within me. Since then I have tried to think of the words that I used. It was a simple sentence, but I presume I shall never be able to recall it. *In an instant I felt I was free.* A. I. Root started down the sidewalk, but it was another man that entered the door of the factory. The A. I. Root that had a fancy for specks of cloud that had something curious about them had vanished. The A. I. Root who sits here dictating these words to you is the one who loves Christ Jesus and him alone. His image is first, and above all and over all; therefore deliverance—yes, emancipation, at least for the time being—has come. Therefore I can present to you, dear brother and dear sister, with a stronger faith than I have ever done it before, the text, "Come unto me, all ye that labor and are heavy laden, and I will give you rest."

Just a week has passed since the above was written. No glimpse of temptation has come in the line indicated. When Christian, in Pilgrim's Progress, felt his burden tumble from his back and roll away, he looked at it in astonishment, and wondered how it was possible he had ever cared to lug it about so long. Just so do I look at the sin from which I had been delivered. When the lame man, in answer to Peter's invitation, rose up and walked, he doubtless looked in astonishment at the good stout limbs that were given him in exchange for the poor weak deformed ones. And so it is with me. I do not know how it comes about that such a change has been wrought in me. Like the blind man I can only say, "One thing I know: that, whereas I was blind, now I see." By quoting these words I do not mean to boast of being (even now) better than people in general, for I hope I am cured, at least for a time, of *that* attitude of heart. Neither do I at present just see *what* bearing this has on the tobacco question. It has, however, given me a *wonderful faith* in the matter. God *can* and *does* deliver in an instant from the gnawings and galling bondage of an evil appetite or an evil habit. An earnest study of his sacred word, and a grasping hold of the promises contained therein, can never come amiss; and with the prayer that this little story may help some other one to find relief through Christ Jesus from the burdens imposed by sin, I close.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apianian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

J. Van Deusen & Sons, Sprout Brook, N. Y.
E. Kretschmer, Red Oak, Ia.
Jerry A. Roe, Union City, Ind.
Leininger Bros., Douglas, O.
J. W. Bittenbender, Knoxville, Ia.
W. J. Row, Greensburg, Pa.
I. R. Good, Vawter Park, Ind.
E. A. Eaton, Bluffton, O.
E. L. Pratt, Marlboro, Mass.
J. D. Goodrich, East Hardwick, Vt.
H. D. Davis & Co., Bradford, Vt.
G. H. Kirkpatrick, Portland, Ind.
C. F. Rood, Romeo, Mich.

THE WISCONSIN STATE BEE-KEEPERS' ASSOCIATION.

TWO DAYS WITH THE WISCONSIN BEE-KEEPERS, HORTICULTURISTS, ETC.

It was a little refreshing, as we came into the city of Madison by moonlight, to see the beautiful lake that borders the city pretty well sprinkled with what I at first took to be sail-boats. Somebody, however, very soon corrected me by telling me that they were *ice* boats. Now, when I undertake to describe ice-boats perhaps I shall "put my foot in it" something as I did when I attempted to tell you about the turkey buzzards of the South. The ice-boats skimmed over the frozen waters of the lake a good deal as you see forest-leaves chase over a frozen pond when driven by the wind. The boat has sails like any boat. It has two *fixed* runners, besides a third one which is not fixed, but which can be turned by the rudder. By turning this rudder and shifting the sails, they run back and forth, and all over the lake. They not only run against the wind (which problem, I presume, is not a very strange one to most of our readers); but with good smooth ice these ice-boats run even *faster* than the wind blows. Of course, in running right square ahead of the wind, the boat can not go quite as fast as the wind goes, on account of friction; but in running at an angle, the boat may, like the sails of a windmill, glide along a good deal faster than the velocity of the wind. The next day I was greatly pleased to see the lake dotted with schoolchildren. Some were skating, and some were running a sort of velocipede made to run on ice. But those that interested me most made *ice-boats* of themselves. They held in their hands what seemed to be a very large kite. The lower part of the kite, where the tail is usually attached, rested on the ice, while the body of the kite was held by the skater. Well, by shifting this kite, or sail, the skater could glide with incredible speed, exactly as the ice-boat does. Unless he was experienced, however, he was very likely to "glide" and "spin" on his back, and a good many of them seemed to be doing this. I suppose this only added to the fun. Perhaps these arrangements are in use elsewhere; but I confess that the idea of skating with a sail in your hands, so as to make the wind the propelling power, was a novelty to me. Perhaps some of the juveniles will "catch on" and put it in practice, providing we have ice enough before spring comes.

The bee-keepers' meeting was held during the convention week of the State Agricultural Society. Now, I do not know how customary it is for other States to hold joint conventions for a whole week at the capital of the State; but to me it was a most wonderful thing, and likewise a grand thing. Your humble servant had the pleasure of talking, not only with the noted bee-men of the State, but also with the horticulturists, fruit-growers, cattle-men, and with the great minds and experts in every department of rural industry. After our bee-keepers' session was adjourned, somebody

spoke of going over to the assembly-room, where addresses were being delivered on dairying. Now, I do not know much about cows, nor about the dairy business either; but I had quite a curiosity to be present at the dairymen's meeting. I wanted to look into the faces of the cattle-men, and I was curious to see whether they managed their conventions any thing in the same line we do ours. Several of the speakers reminded me a good deal of the talks that Terry has given us on horses and cattle. Prof. Henry, of the Experiment Station, stirred me mightily by an account of the investigations they were making in order to determine whether farmers were groping in the dark (as many bee-men have been doing, and are yet), or whether they were doing their level best with mind and muscle to make their occupation profitable. When the governor of the State however (Gov. Hoard), gave us a little talk, not only on keeping cows but on general farming, I felt glad that God had seen fit to give me a place to work in even one department of agricultural industry. It was afterward my privilege to have quite a little chat with Gov. Hoard and a good many other progressive thinkers and workers of the State. Now, even if I should not get much about bees in this issue, I want to give you a little sketch from the talk given us by Gov. Hoard. He said a good many of the dairymen had been working in the dark. They kept thirty or forty cows, fed them intelligently, and made perhaps a very good use of the products of these cattle. But he told us that it was not until quite recently that they had been enabled to keep accurate records of the money value of the product from *each* cow. If the cows are fed about the same, it probably costs about as much to keep one cow as another. He had a lot of figures put on cloth, so it could be unrolled and held up before the audience. The cow at the top of the list produced \$86.00 and some odd cents, in one year. The next one was perhaps between \$40.00 and \$50.00, and so on down to \$25.00, \$10.00, \$5.00, and finally nothing at all; and that chart actually showed that *eleven* cows in the flock gave *minus* figures—that is, their whole product did not pay for the feed they ate, to say nothing of the time of caring for them. They were simply a bill of expense, and the dairymen would have been richer had he made somebody a present of the whole eleven at the commencement of the season. The only trouble is to find out which cows pay and which don't. Now, the farmer who had this drove of cattle, without being told of this, would very likely have kept not only the same flock year after year, but would have gone right on doing *business* in that way. Perhaps bee-men do not do as badly as this; but in bees as well as other farming operations, time and money are wasted in just that way because we do not know *what* we are doing. Very likely many farmers of the old-fogy style would say, "Well, suppose it is so; we can't help it, and there is no other way." My friends, we can help it, and there is a way. We can not all set a chemist at work; but the bright wide-awake man who has a lead-pencil in his

pocket, and uses it as friend Terry recommends, can pretty soon get these *poor* cows and other like stumbling-blocks out of the way.

J. M. Smith, whom I have before mentioned, was president of the association. It was not my good fortune to hear him speak very much; but during the little social chat I had with him in the morning at the hotel, before other people were up, he told me that he wonderful currant-patch (see page 649, 1889) of his actually averaged *twelve* quarts to each bush, or stool of bushes, if you choose. Said I:

"Mr. Smith, those currants were of such extra size and beauty they no doubt netted you more than ordinary figures."

"Yes," said he; "I was a little surprised at the price I received for them. They averaged me ten cents a quart, right through."

Just think of it, friends—\$1 20 for each hill of currants! There was certainly a quarter of an acre of them. He told me how many bushes there were, but I have forgotten. I should say they were planted six feet apart each way. At this rate there would be about 1150 bushes per acre; and \$1.20 per bush would amount to the enormous sum of \$1380. I remember, while looking at them he made a remark something like this:

"Mr. Root, you asked me a while ago if the ground would not, in time, become exhausted, or run out, by being cropped at this tremendous rate year after year. Well, for an answer I want to tell you that the ground where these currant-bushes stand was the acre I commenced with thirty or forty years ago. It has never had any rest. It has been cropped season after season, just as close as the plants can stand. You observe we have onions between our young currants right over there. The men are now pulling the onions, and putting celery where the onions stood. Thus we get currants, onions, and celery, from the same ground during the same season. This one acre that has been used continuously longer than any of the rest of my ground, is perhaps the best land I have. Don't the currants tell the story?"

Please bear in mind, friends, that this statement was not made before any convention or institute. Mr. Smith is an exceedingly modest man, and very likely he would not have mentioned it before the convention at all, nor even to me, had I not asked him point blank in regard to the currants. At the time I looked at them it seemed to me that the sight of that little currant-orchard paid me for my trip to Green Bay, Wis. It paid me in this way: I saw with my own eyes what had actually been done. I have long had notions, as you know, in regard to the possibilities on the acres that lie spread out before us. I saw the bushes bending with currants; I picked them with my own hands, and ate them, and came home with new enthusiasm. What was that care of land worth? Well, I did not think to ask; but I call an acre of my best market-gardening ground worth a thousand

dollars. Of course, land, to be worth such a sum, must be reasonably near a market.

Now, we all admit that Mr. Smith is a great gardener. He has perhaps done a little more in that line than any other man in Wisconsin, and possibly more than any other man in the United States. But let me tell you, there were present at that horticultural convention hundreds of men—yes, comparatively *young* men, who had succeeded in a similar way. Every one who spoke was questioned after he had finished, and these questions drew out a good many facts that perhaps the speakers would not have felt like giving otherwise. A good many of them were bashful, and did not feel like making statements that would look like boasting. But very often their *neighbors* let out what they had been doing on single acres or small patches of ground. Their wives and daughters were there too, and a great many times it transpired that the wives or daughters were the real fruit-growers. During the most interesting part of the meeting, Thursday forenoon, somebody at my back startled me by announcing that A. I. Root, of Medina, O., was present, and that he could not only raise bees and honey, but that he had a story to tell about a peculiar way he had of raising strawberries. I confess I shook in my shoes a little at the thought of speaking to a great company like those present, and especially a company so sharp and keen and wide-awake as they seemed to be. Their pleasant looks, however, and encouraging words, soon put me at ease, and I believe I did pretty well for me. A nice young lady near me was busy with pencil and paper, taking down shorthand notes, including the questions and answers, and the good-natured banter and sallies of wit. She, too, gave me several encouraging smiles; and if my talk gets into print, I may, perhaps, give it to you.

Now, friends, I have not told you any thing about the convention of bee-keepers just yet, and I think I will reserve that until another issue. But I want to say a few words more in regard to these gatherings of rural people, and those who love rural industries, at the great centers of our different States. I never until recently comprehended the value of our great Statehouse buildings, to be found in each of our capitals. I confess that I have for years had a little bit of feeling that there was a great amount of money used in the construction of our Statehouses that many a poor man worked very hard to furnish. At Madison the State building seemed to be utilized in a way I had never dreamed of before. The immense pile of buildings was filled with people. They have an elevator like the one in Lansing, that runs by water. There farmers came with their wives and daughters and sons, and all were taking a holiday week in this great edifice. The array of fruit would have graced any State fair. Specimens of other things were in like manner spread out in the different rooms. Beautiful apartments were furnished for institutes, conventions, and general addresses on every topic. Then there were innumerable cosy private rooms, with all convenient

modern appliances fixed up with all the ingenuity that skill could devise, especially for the comfort of farmers and their children. Now, I am not very much given to visiting, but I did most thoroughly enjoy that visit. I did not find anybody who felt hurt or had a grievance to tell. The general spirit seemed to be to help each other. And, oh my! how we did laugh in comparing notes to see how we had been unconsciously blundering in the dark! It seemed as if we all caught hold and climbed higher up just by talking over our experiences and making comparisons. A great many times some unexplained fact in the experience of one brother would dovetail right in so as to let daylight into some dark corner in the experience of another, and then a third one would clinch the nail by something that covered both points. You ought to have seen the countenance brighten, of some hard worker of the Experiment College, as some practical farmer gave him a valuable fact from experience, right where he had been searching for light. As an illustration: At our bee-convention we discussed pasturage and overstocking. Perhaps very many of us supposed that no experiments had ever been made to settle definitely any thing; whereupon friend S. I. Freeborn brought forward a paper, furnishing an array of facts we had all long been wanting, and which have, perhaps, never been in print before. This paper will be found in our next issue.

Now, friends, when you are inclined to stay away from farmers' institutes and such-like gatherings, and say that it will not pay you, and that you have no money to spare in that direction, remember that your old friend A. I. Root says you are making a *great blunder*. It is a *sin* to stay off by yourselves, and hold aloof from your fellow-men; and it is a *sin* that will bring its own *punishment* sooner or later. I know, for I have tried by experience, just in the way Mark Twain said he knew it was a bad plan to tell lies—he knew it by experience.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

ALLEY TRAP ON THE HIVES THROUGH THE SEASON.

C. B. C.—The Alley trap can be used on the Simplicity and portico hives, and, in fact, on any of the hives we sell. We have sometimes left the trap on during the entire honey season, but we were not satisfied with the result. You will find further particulars under "Drones," in the A B C book.

BEEES 28 FEET FROM THE HIGHWAY.

G. B. H.—We would advise you to put your bees in the back yard, if you have one. A distance of 28 feet is rather too near the public highway; still, if it is inconvenient for you to move them yet, a section or two of nice honey given to the grumbling neighbors will probably adjust matters for a while. Put a high board fence between them and the street, if you have not already done so.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clipping Rates, See First Page of Reading Matter.

MEDINA, FEB. 15, 1890.

He hath delivered my soul in peace from the battle that was against me.—PSALM 55: 18.

MOVABLE FRAMES IN FRANCE.

SINCE the death of Mr. Hamet we find the following in his journal, in a department wherein a national frame is discussed; and it shows most unmistakably that truth is advancing, even in France:

In France, the system of movable frames is far from being as widely diffused as it ought to be.

This is the more remarkable, as it is in direct opposition to Mr. Hamet's ideas.

A NEW BEE-JOURNAL.

We are pleased to note the advent of Vol. I. No. 1 of the *Apicultural Rundschau*, published in the German language, at Weixelburg, Laibach, Austria. The pages are 9 x 13; it contains 14 pages, very coarse print. The presswork is admirable. The *Observer* also contains a horticultural and farming department. The managers are evidently gentlemen who are fully up to the times.

FREIGHT VERSUS EXPRESS FOR HONEY, BERRIES, ETC.

In the *Ohio Farmer* for Jan. 25, Samuel Raw tells how they shipped strawberries to Cincinnati during the past season, by freight. The express company charged 35 cents per 100 pounds, and persisted in dumping the berries just as they pleased, because they were in a hurry, as express companies usually are. The strawberry-growers submitted to 35 cents for a while; but when the express companies advanced to 40, then 45, then 50, the berry-growers held an indignation meeting. Result: They clubbed together, sent a man with the berries, by freight. The man who went with them made arrangements with the commission men to meet the trains and take the berries from the cars, with their own men. Of 2000 bushels shipped by freight, at a cost of only 14½ cents per 100, all came to hand in much better order, and almost as quickly. After they had got the above plan in operation, the express companies proposed to do it cheaper; but they were too late in the day. Now, does not the above remind some of us of a similar experience in shipping honey by express? There is a good moral to it, any way.

OUR PROOF-READER GIVES US SOME FIGURES.

THIS number of GLEANINGS is printed on our new Campbell Oscillator press. As an example of what American presses will do, we might mention that the old press which we have just taken out of our press-room, a Cottrell & Babcock, has printed about 229 numbers of GLEANINGS since November, 1878. This represents 1,832,000 copies, at an average of 8000 per month, although for a long time we have printed 10,000. As each copy requires about 5 in

pressions, it would require 9,160,000 revolutions of the cylinder to do that much presswork. In addition to this we may add all the work on our price list since then, which would be about as much more, and on the A B C book about half as much more, besides miscellaneous work of which we can take no account. And we deem it no small tribute to our workmen to say that the press is still good for many years yet, with the same kind of treatment. It seems like parting with an old faithful friend to have it go. But the demands of business are imperative, and we were compelled to

"Ring out the old, ring in the new."

From Jan. 1, 1879, to Jan. 1, 1890, GLEANINGS contained 9004 pages, or 39½ pages for each number, on an average. The whole pile would weigh 229,000 lbs., and if placed end to end they would reach 290 miles.

CANDIED HONEY; CUTTING DOWN PRICES, ETC.

ON account of my absence in Wisconsin, I did not append my usual foot-note to the initial article in this number. We have, during the past winter, had difficulty in convincing some new customers in a tract a little south of us, that, because the honey became solid in cold weather, it was not necessarily spurious. Complaint came from dealer after dealer. During warm weather they had a satisfactory trade; but when the honey candied on their hands, no explanation would pacify them. There has been such a large amount of discussion in regard to some method for keeping honey from candying that I feel a little backward about taking it up again. Where once a community or town gets to understand it, there is little trouble afterward. But it is a slow, laborious process, many times, teaching the people the facts in the matter. Visiting small bee-keepers, and engaging to take their honey off their hands before they can have a chance to offer it at half its market value, is the plan I have vehemently recommended for years past. I wish to commend most earnestly friend Buchanan's closing thought. Describing your methods of succeeding in business, attending conventions, helping those in the same line of business as yourself, etc., will *never* impoverish a man. The Bible says, "Give, and it shall be given unto you;" and every day, experience convinces us that the successful man is the one who *helps* his neighbors by timely hints, and not the one who wants five dollars for communicating some "valuable secret."

CAN BEES BE MADE TO SWARM AND HIVE THEMSELVES?

THIS old question is taken up by friend Doolittle in this issue. Something like 25 years ago, H. A. King patented the American hive. The particular feature of the patent was a wheel on one side, for automatic swarming. A new hive was to be placed against the old one, having the wheels turned so as to open communication. A book was put out, explaining how to make the bees swarm themselves. A great many of us bought rights, and tried the swarming arrangement. Nobody ever followed it many seasons, however, so far as I know. Perforated zinc was then, of course, unknown. In King's hive the opening was only 1½ or 2 inches in diameter. Doolittle discusses a three-inch hole, or larger, covered with perforated zinc. I feel quite sure it can be made to work. If the opening is made at the proper time, enough bees will go through to care for the brood and to raise a queen. As the old hive becomes populous, more will prob-

ably come through. It will, however, without question, interfere more or less with the amount of comb honey stored by the parent colony—perhaps not more, however, than if bees were loafing continuously on the outside of the hive. A comb of brood should be put in, I think, at once, to draw the bees through; but I would not put in the queen-cell, nor give them a queen until three or four days later; and at a certain stage of proceedings I would close the communication between the two hives. Perhaps some one has done this already, or pretty nearly the same thing; if so, we should be glad to hear from him.

THE OHIO STATE BEE-KEEPERS' ASSOCIATION.

THIS association will meet in joint session with the Northeastern Ohio, Northwestern Pennsylvania, and Western New York Bee-keepers' Association in the Council Chamber, City Hall, Cleveland, Wednesday and Thursday, Feb. 19 and 20. The following is the programme:

Wednesday, 9 A.M.—Convention called to order by the president. Reading the minutes of the last meeting. Receiving new members and paying annual dues, 50 cents.

10 A.M.—H. D. Cutting. 10:50, recess. 11:00, appointment of committees. 11:30, Conventions, A. I. Root. 1:30 P.M., Address by President H. R. Boardman. 2:10, Reversing, Chalon Fowls. 2:50, recess. 3:00, Extracting. Which are more expeditious—reversing or non-reversing machines? Dr. A. E. Mason. 3:00, Question-box. 7:00, Marketing Extracted Honey, Moore Bros. 7:55, recess. 8:05, The Production and Marketing of Comb Honey, M. E. Mason.

Thursday, 9 A.M.—Bee Forage, S. F. Newman. 9:40, Out-aparries, J. B. Hains. Recess. 10:20, Reports of committees and election of officers. 11:10, Cellar wintering, F. A. Eaton, followed by E. R. Root on Outdoor wintering. 1:30, Thick top-bars and honey-boards, E. R. Root. 2:10, Perforated zinc for queen-rearing, Dr. G. L. Tinker. Recess. 3:00, Rearing and shipping queens, Miss Dema Bennett. Unfinished business.

All railroad lines running into Cleveland will sell tickets from any point in Ohio on the Central Traffic Association's plan. Tickets will be good for three days before and after the convention. Be sure that you buy a full-fare ticket to Cleveland, and get a certificate from the agent. The new Johnson House, 133 Superior Street, has reduced rates of \$1.25 each single, or \$1.00 per day double, for those attending the convention. We urge all bee-keepers to bring along their wives. The representatives of the Home of the Honey-bees will probably be accompanied by their better halves. Dr. Miller has also been invited, and will doubtless be present.

ADDITIONAL NAMES.

SINCE the article in regard to the Brantford meeting was in type we have received the following additional names from Mr. R. McKnight, of Owen Sound, Ontario:

- | | |
|-----------------------|-----------------------|
| 36. Andrew Johnston. | 37. A. R. Fierheller. |
| 43. William Hill, Sr. | 45. Enos Rosburgh. |
| 57. William Spedding. | 96. M. B. Smith. |
| 97. William Knowles. | |

In speaking of the picture, which we have reproduced elsewhere in these columns, Mr. McKnight says: "I congratulate you on your enterprise in getting so excellent a copy as the one which you have reproduced and numbered."

SPECIAL NOTICES.

PANSY SEEDS FOR OUR READERS.

We have quite a lot of packets of mixed pansy seeds, which are ordinarily sold at 25 cents a paper. We will present one of these to every one who sends a dollar for GLEANINGS after this date, and mentions pansy seeds as premium; or those who have already subscribed may have a packet for 10 cents. This seed is put up by friend F. B. Mills, Thorn Hill, N. Y., whose seed-garden we pictured in our last issue.

LITTLE PINE BOARDS AT A BARGAIN.

We have constantly accumulating, strips of clear pine, plump $3\frac{1}{4}$ inches wide, $\frac{1}{4}$ inch thick, and 16 inches long, which we have no use for. If we were obliged to make them they would cost perhaps a cent apiece. As we have no special use for them we will sell them for 25 cents a hundred while they last. In ordering goods by freight you can have some of them put in if you choose.

ALSIKE CLOVER.

We make the following reduction in the price of the above: One ounce, by mail, 5 cts.; one pound, by mail, postpaid, 25 cts. By express or freight, one pound, 15 cts.; one peck, \$1.90; $\frac{1}{4}$ bushel, \$3.60; bushel, \$7.00. The above is for seed carefully cleaned with the best mill made for the purpose, run by power. Not a pound goes out without careful inspection in regard to the seeds of weeds and dangerous plants. The above prices include bag for shipping.

COLD-FRAME CABBAGE-PLANTS.

We have perhaps the handsomest lot of these (friend March's Early Jersey Wakefield stock seed) that we ever had at this season of the year. The seed was sown in September, and the plants have been frozen up solid over and over again, so they are thoroughly hardened. Price: 10 cents for 10; 75 cts. per 100; \$6.00 per 1000. If wanted by mail, add 5 cts. for 10; 25 cts. for 100, extra, for postage. Seedling cabbage-plants from seeds sown in January, 20 cts. per 100, or \$1.50 per 1000. If wanted by mail, add 10 cts. per 100, or 50 cts. per 1000 for postage. Lettuce-plants at the same prices. For transplanted plants, see our seed catalogue.

THE NEW HOT-BED SASH MADE OF GLASS SLATS.

At this date, Feb. 12, lettuce-plants, cabbage and cauliflower plants, have come up and are growing beautifully under these sash, which have not been moved at all since the seeds were planted; neither has any covering been placed over the glass, although the thermometer has run down to 15 above zero. Of course, the single steam-pipe about two feet below the surface of the bed has helped materially to keep away the frost; but even if with the use of a steam-pipe we can do away with the manipulation of sash in the month of February, I think it quite an invention.

JAPANESE BUCKWHEAT.

A great many offers of seed have been received, in quantities varying from ten bushels to several hundred. The prices wanted for quantities, run from 50 cts. to \$1.50. The expense of transportation, of course, accounts for a great part of the wide difference in prices. It seems pretty hard to sell our seed at less than what it cost cash right out; but until further notice our prices will be as follows: Trial packet, 4 ounces, by mail, postpaid, 5 cts.; one pound, by mail, postpaid, 15 cts.; one peck, 35 cts.; $\frac{1}{4}$ bush., 60c.; bush., \$1.00. These prices include bag to ship it in. Ten or more bushels, purchaser paying for bags, 75 cts. Please note, we can not promise to hold to these prices except from one issue to another. The price is liable to advance by our next issue. Please also notice, that small quantities, say a peck or half a bushel, can't be sent any distance, either by mail, freight, or express, without the transportation being more than the value of the buckwheat; and at the above low price it can not very well be sent by express, any way you can fix it, without the charges being more than its value; therefore your only plan is to order it by freight along with other goods. If you take several bushels, of course it can be shipped by itself by freight. Remember, our seed is carefully cleaned by one of the best power mills.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black and mismatched queens, 85c each.

H. FITZ HART, Avery P. O., Iberia Par., La.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—Honey.—Since last issue we have received eighty cases of Vermont clover and 20 cases of New York buckwheat honey, and have sold about an equal quantity. There is no change to note in prices, and stock of fine white honey is quite small. We look for a good demand for extracted honey all through this month. We quote comb honey: Clover, 12@14; mixed, 10@12; buckwheat, 9@10; extracted, clover, 7@8; buckwheat, 6@7.
C. MCCULLOCH & CO.,
Feb. 10. 339 Broadway, Albany, N. Y.

COLUMBUS.—Honey.—Market remains firm at 14@15 for choice stock. Dark and inferior grades meet with no sale. Extracted honey. Shippers, this kind of weather, should pack their honey carefully, as two-thirds of the shipments received come in broken-down condition. EARLE CLICKINGER,
Feb. 10. Columbus, Ohio.

SAN FRANCISCO.—Honey.—Extracted honey sells from 6@6½, in a jobbing way, as to quality. Comb honey, from 12@14, as to quality. There is some demand for extracted honey for export.

SCHACHT, LEMCKE & STEINER.
Feb. 4. 16 & 18 Drum St., San Francisco, Cal.

ST. LOUIS.—Honey.—Market tame. Demand light. We quote: White clover, comb, 13@13½; dark, 10@12. Extracted, light color, good flavor, 5½@5¾; medium bright, 5¾; dark, 4¾@5.

D. G. TUTT GROCER CO.,
Feb. 10. St. Louis, Mo.

NEW YORK.—Honey.—Honey is selling slowly in this market. Fancy goods almost closed out. Only second grades remain.

THURBER, WHYLAND & CO.,
Feb. 10. New York.

DETROIT.—Honey.—Comb honey is now quoted at 11@13c; supply not very large, but sales are slow. Extracted, 7@8. Beeswax, 24 M. H. HUNT,
Feb. 10. Bell Branch, Mich.

BOSTON.—Honey.—Sections, 1-lb., 16; 2-lbs., 15. Extracted, 7@9. Beeswax, 23. Trade dull.
BLAKE & RIPLEY,
Feb. 10. 57 Chatham St., Boston, Mass.

FOR SALE.—1500 lbs. of extracted white-clover honey, in 50-lb. cans, at 9c per lb. Honey first-class. E. P. ALDRIDGE, Franklin Square, Ohio.

Get honey direct from the producer. Send for reduced prices of filled sections, pails, cans, etc. OLIVER FOSTER, Mt. Vernon, Ia.

FOR SALE.—2000 lbs. of choice white-clover honey, well ripened, in 60-lb. cans, at \$4.75 per can, boxed, f. o. b. No. 1 Spanish-needle honey, \$4.50 per can of 60 lbs. 3-4d JNO. NEBEL & SON, High Hill, Mo.

Bees! Yes, Lots for 1890, Ready!

We are better prepared this coming summer than ever before, to furnish all kinds of Bee-supplies, Hives, Comb Foundation, Sections, Smokers, Extractors, Queens, Bees by the pound, Nuclei, and Full Swarms. Every thing needed in the bee-business. Send for our new eighth annual Price List, just out.

R. E. SMITH,
Box 72. Tilbury Centre, Ont., Can.

In responding to this advertisement mention GLEANINGS.

EVERBEARING STRAWBERRY. Descriptive price list free.
4-5-6d SETH WINQUIST, Russellville, Oregon.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c, extra large, 75c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD,
4-9db BIRMINGHAM, JEFF. CO., ALA.

In responding to this advertisement mention GLEANINGS.

LIVINGSTON'S CATALOGUE FOR 1890

Our 1890 Catalogue is BETTER THAN EVER.

A complete Garden Guide, full of practical ideas about all kinds of

SEEDS

Vegetables, Flowers, Bulbs, etc., necessary for the garden is mailed FREE to all who apply if they mention this paper.

With prices lower, quality higher, better facilities for filling orders promptly, generous treatment and over 40 years Seed Farm experience enables us to please you.

A. W. LIVINGSTON'S SONS, Box 272, COLUMBUS, O.

In responding to this advertisement mention GLEANINGS.

SOLD IN 1889, AND
ready to sell in 1890, all kinds of Bee-keepers' Supplies, Bees, Queens, etc. Send your address and receive our circular.
JNO. NEBEL & SON,
3tfdb High Hill, Mo.

In responding to this advertisement mention GLEANINGS.

The Choice Novelties of 1890.

HERE IS A LIST THAT WILL GIVE SATISFACTION.—**Red Cross Tomato**—Resembles Livingston in form, solidity, color, etc., but is decidedly earlier. **Ignotum Tomato**—Round, solid and productive; both Rural New Yorker and Prof. Taft have a special good word for Ignotum. **Grang Watermelon**—A distinct variety, flesh salmon-color, quality and flavor peculiarly rich and sweet. **Marblehead Early Marrowfat**—A remarkably strong grower, a tremendous cropper, and bears several pickings. **Early Prize Pea**—Cross between Tom Thumb and Advancer; dwarf, early, and a splendid cropper. **The Favorite**—A better Pea than either Abundance or Everbearing. **Ford Hook Squash**—Dry, fine grained, sweet, hardy, prolific. **White Prolific Marrow**—A new English dwarf, wrinkled Pea, a wonderful cropper. **Giant Pascal Celery**—Stalks extra large, solid, and a better keeper than other self-blanching varieties. **Cylinder Wax Bean**—The rust and blight-proof Wax Bean so long sought for. **Coral Gem Pepper**—With its hundreds of brilliant red pods, it is as brilliant as a gem. **Blonde Block-Head Lettuce**—A rich, golden-headed Cabbage, crisp and fine.

15 cts. per package; Ten for \$1.00. An extra package to all naming this paper. Seed Catalogue free. **JAMES J. H. GREGORY, Marblehead, Mass.**

In responding to this advertisement mention GLEANINGS.

GET ACQUAINTED WITH THE BEE-KEEPERS' REVIEW.

The December issue has 24 pages, a cut showing "The Home of the REVIEW," also an accompanying article descriptive of "The REVIEW, its Home, its Editor and his Family." This number shows more clearly, perhaps, the plan upon which the REVIEW is conducted, than does any single number that has preceded it. In its advertising columns will be found the description of a plan whereby all who wish may secure the back numbers at a trifling cost. The special topic of this issue is, "What Will Best Combine With Bee-Keeping? and What Shall Bee-Keepers do Winters?" This number will be gladly sent free to all who apply, and with it will be sent two other numbers. 2tfdb

W. Z. HUTCHINSON, Flint, Mich.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, \$3.50 per 1000; 2000 to 5000, \$3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at \$2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS

Coming to Washington, D. C., will find pleasant rooms and board (by day or week) at special rates. Satisfaction guaranteed. Central location.

1301 K. St., N. W. 3tfdb F. DANZENBAKER.

In responding to this advertisement mention GLEANINGS.

DON'T FAIL TO TRY THE
"MIAMI,"
THE BEST LATE STRAWBERRY ON EARTH!

FINE LITHOGRAPH.

HONEST TESTIMONIALS.

ALSO OTHER VALUABLE VARIETIES,
AND A

GENERAL NURSERY STOCK

For sale. Send address for prices, description, etc.

J. D. KRUSCHKE,

BOX 824, PIQUA, O.

3 4d

In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. E. MILLS, Thorn Hill, N. Y.

TAKE NOTICE!

BEFORE placing your Orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

In responding to this advertisement mention GLEANINGS.

FOR SALE.—Bottom For Cash. See Exchange Column. H. L. GRAHAM,
3 4d LETTS, LOUISA CO., IOWA.

BEES

SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at \$1 a year—the oldest, largest and cheapest Weekly bee-paper. Address
16tfdb **BEE JOURNAL, Chicago, Ill.**

SEND \$1.25 TO THOMAS GEDYE, Kangley, Ill., for a sample of his *All-Metal Separator*, or \$11.50 per 1000, and be convinced that they are the cheapest and best out. At present I have them for combined crates and T supers only. Supply-dealers, please send for prices on large quantities, cut or uncut. 1tfdb

In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

GLEANINGS IN BEE CULTURE.

Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, *postpaid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

- | | |
|--|------|
| 8 Bible, <i>good print</i> , neatly bound..... | 25 |
| 10 Bunyan's Pilgrim's Progress**..... | 35 |
| 6 First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50c. Two copies will be sold for 75 cents. Postage six cents. | |
| 5 Harmony of the Gospels..... | 35 |
| 3 John Pughman's Talks and Pictures, by Rev. C. H. Spurgeon..... | 10 |
| 1 Gospel Hymns, consolidated Nos. 1, 2, 3 and 4, words only, cloth, 10c; paper..... | 05 |
| 2 Same, board covers..... | 20 |
| 5 Same, words and music, small type, board covers..... | 45 |
| 10 Same, words and music, board covers..... | 75 |
| 3 New Testament in pretty flexible covers..... | 05 |
| 5 New Testament, new version, paper cover..... | 10 |
| 5 Robinson Crusoe, paper cover..... | 10 |
| 15 Story of the Bible**..... | 1 00 |
| A large book of 700 pages, and 274 illustrations. Will be read by almost every child. | |
| 5 The Christian's Secret of a Happy Life**..... | 25 |
| 8 Same in cloth binding..... | 50 |
| 8 "The Life of Trust," by Geo. Muller**..... | 1 25 |
| 1 Ten Nights in a Bar Room, by T. S. Arthur*..... | 05 |

BOOKS ESPECIALLY FOR BEE-KEEPERS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well, by the amount required for postage on each.

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| 12 A B C of Bee Culture** Paper..... | 88 |
| 12 A B C of Bee Culture** Cloth..... | 1 10 |
| 5 A Year Among the Bees, by C. C. Miller**..... | 70 |
| 14 Bees and Bee-keeping, by Frank Cheshire, England, Vol. I, **§..... | 2 36 |
| 21 Same, Vol. II, **§..... | 2 79 |
| or, \$5.25 for the two, postpaid. | |
| 15 Bees and Honey, by T. G. Newman..... | 1 00 |
| 15 Doolittle on Queen Rearing**..... | 1 35 |
| 5 Doolittle on Queen Rearing**..... | 95 |
| 2 Dzierzon Theory**..... | 10 |
| 1 Food Brood; Its management and cure; D. A. Jones**..... | 09 |
| 1 Honeybees Food and Medicine..... | 5 |
| 10 Langstroth on the Hive and Honey-Bee*** | 1 40 |
| 15 Langstroth Revised, by Ch. Dadant & Son** | 1 85 |
| 10 Quinby's New Bee-Keeping..... | 1 40 |
| 10 Queen-Rearing, by H. Alley*..... | 1 00 |
| 4 Success in Bee Culture, by James Heddon*..... | 46 |
| The Production of Comb Honey, by W. Z. Hutchinson**..... | |
| The Apiary; or, Bees, Bee-Hives, and Bee Culture, by Geo. Neighbour & Sons, England*§ | |
| British Bee-keeper's Guide - Book, by Thos. Wm. Cowan, Esq., England*§..... | |
| 3 Merrybanks and His Neighbor, by A. I. Root..... | 25 |

MISCELLANEOUS HAND-BOOKS.

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| 5 A B C of Carp Culture, **..... | 35 |
| 3 A B C of Potato Culture, Terry**..... | 35 |
| This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 43 pages and 22 illustrations. | |
| 5 An Egg-Farm, Stoddard**..... | 45 |
| Barn Plans and Out-Buildings*..... | 1 50 |
| Cranberry Culture, White's..... | 1 25 |
| Canary Birds; paper, 50c; cloth*..... | 75 |
| Draining for Profit and Health, Warring..... | 1 50 |
| 5 Eclectic Manual of Phonography; Pitman's System; cloth..... | 50 |

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| 6 Fuller's Practical Forestry*..... | 1 40 |
| 10 Farming For Boys*..... | 1 15 |

This is one of Joseph Harris's happiest productions, and it seems to me that to make farm-life fascinating to any boy who has any sort of taste for gardening.

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| 10 Fuller's Grape Culturist**..... | 1 40 |
| 7 Farm, Gardening, and Seed-Growing**..... | 90 |

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

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| 10 Gardening for Pleasure, Henderson*..... | 1 40 |
| 10 While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. | |
| 12 Gardening for Profit, new edition**..... | 1 85 |

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you cannot get but one book, let it be the above. It has 376 pages and 138 cuts.

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| 10 Gardening for Young and Old, Harris**..... | 1 25 |
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This is Joseph Harris's best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as to old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

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| 10 Garden and Farm Topics, Henderson**..... | 75 |
| 5 Gray's School and Field Book of Botany..... | 1 80 |
| 5 Gregory on Cabbages; paper*..... | 25 |
| 5 Gregory on Squashes; paper*..... | 25 |
| 5 Gregory on Melons; paper*..... | 25 |

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

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| 10 Household Conveniences..... | 1 40 |
| 2 How to Propagate and Grow Fruit, Greer*..... | 25 |
| 5 How to Make Candy**..... | 45 |
| 10 How to Keep Store*..... | 1 00 |
| 2 Injurious Insects, Cook..... | 25 |
| 10 Irrigation for the Farm, Garden, and Orchard, Stewart*..... | 1 49 |

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 148 cuts.

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| 10 Money in The Garden, Quinn*..... | 1 40 |
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3 | Maple Sugar and the Sugar-Bush**..... 35
By Prof. A. J. Cook. This was written in the spring of 1887, at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest sugar and maple syrup, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses needs the sugar-book. It has 42 pages and 35 cuts.

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| 1 Poultry for Pleasure and Profit**..... | 10 |
| 11 Practical Floriculture, Henderson*..... | 1 35 |
| 10 Peach Culture, Fulton's..... | 1 50 |
| 10 Profits in Poultry*..... | 90 |
| 2 Silk and the Silkworm..... | 10 |
| 10 Small-Fruit Culturist, Fuller*..... | 1 40 |
| 10 Success in Market-Gardening*..... | 90 |

This is new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

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| 3 Strawberry Culturist, Fuller*..... | 15 |
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10 | Talks on Manures*..... 1 75
This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

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| 2 The Carpenter's Steel Square and its Uses; Hodgson; Abridged..... | 15 |
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| 10 The New Agriculture, or the Waters Led Captive..... | 75 |
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| 2 Treatise on the Horse and his Diseases..... | 10 |
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| 3 Winter Care of Horses and Cattle..... | 40 |
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This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages, and 4 cuts.

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| 8 What to Do, and How to be Happy While Doing It, by A. I. Root..... | 50 |
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| 3 Wood's Common Objects of the Microscope**..... | 47 |
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Address your orders to
A. I. ROOT, Medina, O.

WINTER PRICES.

We will, until March 1st, 1890, make the usual **DISCOUNTS**, or, in other words, furnish **SAME GOODS** at **SAME PRICES** as are offered in *Gleanings*.

We Manufacture a Full Line of

Bee-Keepers' Supplies,

And shall be pleased to furnish **ESTIMATES** on any quantity of Goods.

Send for large *Illustrated Price List*, mailed free.

THE W. T. FALCONER MFG. CO.,
Jamestown, N. Y.

Mention GLEANINGS.

The Ullmann & Philpott Mfg. Co.,
89-93 MERWIN ST., CLEVELAND, O.

Manufacturers of Fine Black and Colored

PRINTING INKS.

This Journal is Printed with our Inks.
24 22d

RERUM COGNOSCERE CAUSAS,

TO know the Causes of Things, is the key to Success in any industry. If you wish to succeed in the **Bee Business**, you must read and become acquainted with the most Successful Methods of Bee-Management and Honey-Production.

LANGSTROTH'S WORK,

REVISED BY DADANT,

Contains the result of **practical experience** with Bees. It gives the Physiology of the Bee, with numerous **Quotations** from the latest Scientific Writers, the Description of the **best Hives**, Directions for the Proper Management and Handling of Bees; the most **Practical Methods of Queen-Rearing**, **Swarming** (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing **Comb and Extracted Honey**, the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

The instructions for the **Rendering of Beeswax** are alone worth the price of the Book, to many bee-keepers who waste a part of their wax in rendering it.

This book, "the most complete ever published," is shortly to be published in the French, Italian, and German Languages, by Practical European Apiarists. It is highly recommended by all publishers of Bee-Literature in the Old World as well as in the New.

Cloth Binding, 550 Pages, 199 Engravings, 19 Full-Page Plates. Gilt front and back. This book is an Ornament to any Library.

Price: By Express, \$1.85. By mail, prepaid, \$2.00. Special prices to Dealers who wish to advertise it in their circulars.

We also offer for Sale, **20,000 Lbs. of Honey**, of our crop of 1889; **25 Tons of Comb Foundation**, Smokers, Bee-Veils of Imported Material, etc. Send for Circular. Address

3tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75
PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives **LOW SPECIAL FREIGHT RATES** to many Southern points, especially to points in **TEXAS**.

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.

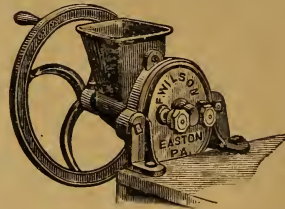
In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT. - AGENTS wanted everywhere, for the **HOME JOURNAL**—a grand family paper at \$1 a year. *Big cash premiums.* Sample **FREE.** **THOS. G. NEWMAN & SON,** 923 & 925 West Madison Street, - **CHICAGO, ILLS.**

Wilson's No. 1 Bone-Mill,

FOR GRINDING DRY BONES, SHELLS, GRAIN, AND ANY THING ELSE YOU WANT TO GRIND.

Given Free for 18 Subscriptions.



Who has not wanted a mill of some kind, to grind up things? The coffee-mill is all right as far as it goes; but it is slow; and if you don't look out it will break. The mill shown in the accompanying picture will not only grind all sorts of grain for the chick-

ens, but it will also break it up coarsely for table use. Cracked wheat and cracked corn are not to be despised for a change in the bill of fare, I tell you, especially when you have nice honey or maple molasses to fix with it. Well, this mill will do more too. It will grind oyster-shells so as to give the hens material for egg-shells. It will also grind bones; yes, broken crockery, broken flower-pots, or any thing else. Well, by the latter operation you kill two birds with one stone—you get it out of the door-yard, and furnish the biddies just exactly what they need for grinding up the grain in their crops. If you do not believe it is better than gravel, just give the fowls a chance to tell you which they like best. The usual price of this mill is \$5.00; but you may have the mill and **GLEANINGS** too a whole year, for \$5.50. If you have already paid for **GLEANINGS** for a year, you may have the mill for \$4.50. The sieve attachment for taking out the fine dust, when crushing shells, or to take out fine meal, when crack ingcorn, will be furnished for 60 centsextra.

A. I. ROOT, Medina, O.